SECTION 3.0

Affected Environment

3.0 AFFECTED ENVIRONMENT

3.1 Visual Resources

This section provides a discussion of the existing visual resources in the vicinity of the Imperial Valley Solar Energy Center South project site that could potentially be affected by the construction and operation of the Proposed Action. The effect that a project could have on visual resources would not be limited to the project site. Rather, the degree to which a project could affect the visual quality of a landscape depends on the visual contrast created between a project and the surrounding existing landscape (BLM, 1986).

3.1.1 Regulatory Framework

3.1.1.1 Bureau of Land Management

The California Desert Conservation Area (CDCA) encompasses 25 million acres of land in Southern California that were designated by Congress in 1976 through the Federal Land Policy and Management Act. The BLM directly administers approximately 10 million acres of the CDCA (BLM, 1980). All of the BLM-managed public lands in the CDCA (with the exception of a few small and scattered parcels), have been designated geographically into four multiple-use classes. In the CDCA, visual resource management objectives in the multiple-use class guidelines provide the framework for determining appropriate levels of management, protection, and rehabilitation of BLM lands.

The transmission line corridor and adjacent BLM lands are located entirely within the Yuha Basin Area of Critical Environmental Concern (ACEC) of the CDCA Plan, while the proposed solar energy facility is outside of and immediately adjacent to the designated ACEC land to the west. More specifically, the transmission line corridor is located within a Multiple-Use Class L (Limited Use) designated area within the CDCA. The Multiple-Use Class L (Limited Use) designation protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.

The BLM has several manuals that are used to provide direction on how to analyze visual resource effects for projects. BLM's Manual 8400 – Visual Resource Management (VRM) describes the overall policy direction for VRM in the BLM. BLM's Manual H-8410-1 – Visual Resource Inventory provides BLM managers with a means for determining visual values. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM-administered lands are placed into one of four visual resource inventory classes.

Outside of the CDCA area, VRM Classes are used to prescribe the amount of change allowed in the characteristic landscape. The Proposed Action is located within a VRM Class II area. VRM Class II areas have a "low visual sensitivity" resource value. The objective of this class is to "retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management

activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape" (BLM, 1984).

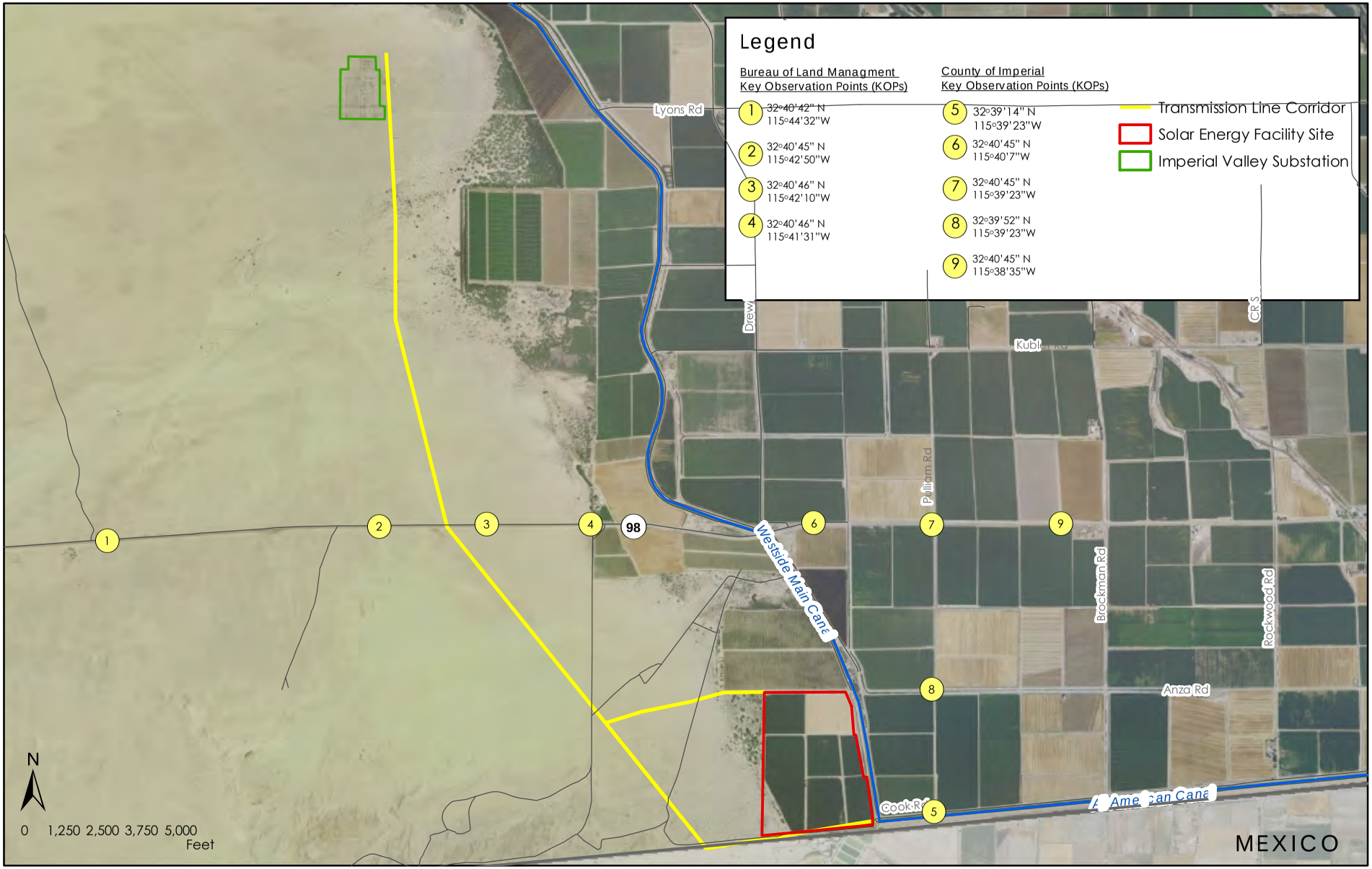
BLM provides VRM guidance in their Manual 8431 – Visual Resource Contrast Rating. As described in this manual, the BLM requires that projects analyze visual resource impacts by identifying the key observation points (KOPs) within the area surrounding the project site. The following describes the process in selecting KOPs as discussed in Manual 8431:

> *"The contrast rating is done from the most critical viewpoints. This is usually along commonly traveled routes or at other likely observation points. Factors that should be considered in selecting the KOP's are; angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions (see IID2b for a more detailed description of these factors). Linear projects such as powerlines should be treated from several viewpoints representing:*
>
> - *Most critical viewpoints, e.g., views from communities, road crossings.*
> - *Typical views encountered in representative landscapes, if not covered by critical viewpoints.*
> - *Any special project or landscape features such as skyline crossings, river crossings, substations, etc.*

As discussed in more detail below and as depicted on Figure 3.1-1, four KOPs were identified that have existing views of the Transmission Line Corridor within BLM lands. The following describes the location of the four KOPs:

1. KOP#1: Located along SR-98, west of the transmission line corridor. KOP#1 provides a view of BLM lands and the existing transmission towers in the distance. No visually compromising elements are visible from this KOP.
2. KOP#2: Located along SR-98, west of the transmission line corridor. KOP#2 provides a view of the existing transmission towers located within the Utility Corridor "N" on BLM land. No visually compromising elements are visible from this KOP.
3. KOP#3: Located along SR-98, east of the transmission line corridor. KOP#3 provides a view of the transmission towers located within Utility Corridor "N" on BLM land. No visually compromising elements are visible from this KOP.
4. KOP#4: Located along SR-98, east of the transmission line corridor. KOP#4 provides a view of BLM lands on the northern and southern sides of SR-98 and a view of the existing transmission towers in the distance located within the Utility Corridor "N" on BLM land. No visually compromising elements are visible from this KOP.

The proposed use of the existing dirt access road (proposed to be widened) within BLM lands is located west of the Westside Main Canal and is not visible from any KOP. Figures 3.1-2a and 3.1-2b depict photo views of the existing BLM lands from the four KOPs.



SOURCE: ESRI, 2010; RECON, 2010; BRG Consulting, Inc., 2010

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Location of Key Observation Points

FIGURE 3.1-1

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 1\Figure 3.1-1 Location of KOP.mxd

View from KOP #1 (SR-98) looking east towards transmission line corridor. This view shows BLM lands and existing transmission towers in the distance.

View from KOP #2 (SR-98) looking east towards transmission line corridor. These existing transmission towers are located within Utility Corridor "N".

SOURCE: BRG Consulting, Inc., 2010

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Views of Existing BLM Land and Transmission Line Corridor from Key Observation Points

FIGURE 3.1-2a

F:\projects\1009 Imperial Solar South\2nd Screencheck EIR_EA\Chapter 3\Section 1\Figure 3.1-2a View of Existing.ai

View from KOP #3 (SR-98) looking south towards the existing transmission lines located within Utility Corridor "N".

View from KOP #4 (SR-98) looking southwest towards the existing transmission lines located within Utility Corridor "N".

SOURCE: BRG Consulting, Inc., 2010

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Views of Existing BLM Land and Transmission Line Corridor from Key Observation Points

FIGURE 3.1-2b

F:\projects\1009 Imperial Solar South\2nd Screencheck EIR_EA\Chapter 3\Section 1\Figure 3.1-2b View of Existing.ai

3.1.1.2 Regional

Southern California Association of Governments

The Southern California Association of Governments (SCAG) Intergovernmental Review (IGR) section, part of the Environmental Planning division of Planning and Policy, is responsible for performing consistency review of regionally significant local plans, projects, and programs. Regionally significant projects are required to be consistent with SCAG's adopted regional plans and policies. The IGR section does not include any policies that address aesthetics, light or glare.

3.1.1.3 Local

Imperial County General Plan

The Imperial County General Plan contains policies for scenic resources and open spaces to provide guidance for design of development within the County. The Conservation and Open Space element of the General Plan provides specific objectives for maintaining and protecting the aesthetic character of the region and while this EIR/EA analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Planning Commission and Board of Supervisors will determine the project's consistency with the General Plan.

A. Circulation and Scenic Highways Element

The County of Imperial has established a Circulation and Scenic Highways Element in the General Plan (Imperial County, revised 2008) to identify the future transportation needs of local residents and businesses. The inclusion of Scenic Highways provides a means of protecting and enhancing scenic resources within highway corridors in Imperial County, which is consistent with the Caltrans State Scenic Highway Program.

There are no designated scenic highways surrounding the area of the Proposed Action nor is the project area visible from any designated scenic highway. The portion of I-8 from the San Diego County line and its junction with State Route 98 is eligible for future Scenic Highway Designation. However, this portion of I-8 is several miles west of the Proposed Action, and no portion of the project area is visible from that distant location.

B. Conservation and Open Space Element

The Conservation and Open Space Element of the General Plan identifies plans and measures for the preservation and management of biological and cultural resources, soils, minerals, energy, regional aesthetics, air quality, and open space. The Conservation and Open Space Element identifies one goal and one objective for the preservation of regional visual resources. Table 3.1-1 provides an analysis of the project's consistency with Goal 7.

Goal 7: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.

Objective 7.1: Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape.

TABLE 3.1-1
Project Consistency with General Plan Conservation and Open Space Policies

General Plan Policies	Consistency with General Plan	Analysis
Goal 7: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.	Yes	The potential visual and aesthetic impacts associated with the Proposed Action are evaluated in Section 4.1 Visual Resources. While the Proposed Action will change the visual character at the project site from its existing condition of farmland to a solar energy facility, no significant visual impact has been identified.

Source: BRG Consulting, Inc., 2010.

3.1.2 Affected Environment

3.1.2.1 Visual Character and Scenic Quality

A. Imperial County

Imperial County extends over 4,597 square miles between Riverside County (north) and Mexico (south), and between San Diego County (west) and the State of Arizona (east) and contains a wealth of scenic visual resources. These visual resources include desert areas, sand hills, mountains, and the Salton Sea.

The desert includes the Yuha Desert, the West Mesa, lower Borrego Valley, East Mesa, and Pilot Knob Mesa, which add beauty to the natural landscape. The barren landscape contrasts starkly against the backdrop of mountains. Other scenic deserts include the West Mesa area, which is bordered on the east by the Algodones Sand Dunes, the lower Borrego Valley, the East Mesa and Pilot Knob Mesa.

Mountains make up another significant visual resource of Imperial County. On the west side of the County are the eastern foothills of the Peninsular Range. The Chocolate Mountains, so named because of their dark color, are located in the northeastern portion of the County, stretching northwest by southeast between Riverside County and the Colorado River. These mountains reach an elevation of 2,700 feet, and are highly visible throughout the County. They are extremely rugged, virtually undeveloped, and used as a Naval Gunnery Range (Imperial County General Plan, Conservation and Open Space Element).

B. Project Site

The Proposed Action site consists of four primary components: 1) the Imperial Solar Energy South solar energy facility property located on private lands; 2) the proposed electrical transmission line corridor located within BLM lands; 3) proposed access road and improvements would be located on an existing dirt road (proposed to be widened by five feet), a portion of which traverses through BLM lands; and, 4) Applicant Proposed Measures as described in Technical Appendix J. The project site is relatively flat.

Imperial Solar Energy Center South Solar Energy Facility

The solar energy facility site is located on private land in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles west of the City of Calexico. The site is located south of Anza Road, north of Cook Road, and is generally bisected by Pulliam Road. The solar energy facility site consists of 946.6 gross acres of privately-owned land, currently used for agricultural production. The U.S. international border with Mexico is located immediately south of the site. Federal lands under the jurisdiction of the BLM are located immediately west of the site. More specifically, this adjacent BLM land is designated as Utility Corridor "N" within the Yuha Desert, in the BLM's CDCA Plan. Agricultural lands are located north and east of the site. Figure 2-3 provides an aerial photograph of the photovoltaic facility project area.

Electrical Transmission Line Corridor

The proposed solar energy facility site is located approximately five miles southeast of the existing Imperial Valley Substation. The Proposed Action includes the solar energy facility interconnection to the utility grid at the 230 kV side of the Imperial Valley Substation via an approximately five-mile long transmission line. The proposed right-of-way for the electrical transmission line corridor would be located within Utility Corridor "N" of the BLM's California Desert Conservation Area Plan (Figure 2-5). The BLM land is primarily vacant and undisturbed desert land; however, existing utilities, including several 230 kV transmission lines and towers traverse this area. The existing Imperial Valley substation is also located in this area. As discussed above, this portion of the Proposed Action is located within the Multiple-Use Class L (Limited Use) of the BLM CDCA plan.

Access Road

The project proponent is also requesting construction and operational access to the solar energy facility site via an existing dirt access road located along the west side of the Westside Main Canal, a portion of which is located within BLM lands. The existing conditions of the BLM lands for the access road is the same as the transmission line corridor described above.

3.1.2.2 Visibility

Existing views onto the project site are available from the surrounding areas, specifically from SR-98, Pulliam Road, Anza Road, and Cook Road. Due to the flat topography of the project site and the surrounding area, besides the existing transmission lines located within the BLM transmission corridor, the project site is not readily visible from many viewpoints, and there are no unique topographical features associated with the site. On June 16, 2010, BRG Consulting, Inc., conducted a visibility analysis of the project site, which included taking photos from nine different KOPs within the surrounding area. Figure 3.1-1 depicts the photo view point locations (KOPs) for the Proposed Action. Based on the visibility analysis, the site is only visible

from immediately adjacent roads. The only portion of the project that is visible from more distant surrounding roads are the transmission lines and towers that currently traverse BLM lands. Due to the flat topography of the area the solar energy facility site, located within Imperial County private lands would only be visible from KOPs 8 and 5, which are located immediately within the project site (Figure 3.1-3). The transmission lines and towers within BLM lands are visible from KOPs 1, 2, 3, and 4.

Figures 3.1-2a and 3.1-2b provide photos of the views of the existing transmission lines on BLM land that are visible from KOPs 1, 2 3, and 4. These photos depict the current view conditions of the transmission lines from vehicles traveling along SR-98.

Key Observation Points

Based on a visibility analysis conducted by BRG, portions of the solar energy facility site would be visible from local roadways and the transmission corridor would be visible from SR-98. The following describes the KOPs for the Proposed Action.

Solar Energy Facility Site located within Imperial County Private Lands

As discussed above, the solar energy facility site located within Imperial County private lands is visible from two KOPs, which are identified as KOPs 5 and 8 on Figure 3.1-1. Figure 3.1-3 depicts the existing photo views from these KOPs. The following describes the location of the two KOPs:

1. KOP#5: Located within southern portion of solar energy facility site on Imperial County private lands. KOP#5 provides a view of the southern portion of the solar energy facility site. The solar energy facility site is currently used for agricultural production. No visually compromising elements are visible from this KOP.

2. KOP#8: Located within portion of the solar energy facility site on Imperial County private lands. KOP#8 provides a view of the solar energy facility site, which is currently used for agriculture production. No visually compromising elements are visible from this KOP.

Transmission Line Corridor within BLM Lands

As discussed above, the transmission line corridor located within BLM lands is visible from four KOPs, which are indentified as KOPs 1, 2, 3, and 4 on Figure 3.1-1. Figures 3.1-2a and 3.1-2b depict the existing photo views from these KOPs.

Access Road within BLM Lands

As discussed above, the access road within BLM lands is not visible from any KOPs.

3.1.2.3 Light and Glare

The project site is located in undeveloped area of the County of Imperial that is predominately used for agricultural production and is desert lands. Due to the nature of the existing surrounding land uses, there is little light generated by surrounding uses and most of the light and glare that exists within the project area is a result of motor vehicles traveling on surrounding roadways. These roadways, generate glare both during the night hours, when cars travel with lights on, and during daytime hours because of the sun's reflection from cars and pavement surfaces. Lighted area also located on the existing transmission lines for purposes of alerting aircraft operating at night in the area.

View of Solar Energy Facility Site from KOP #5 (within project site) looking southwest towards Mt. Signal.

View of Solar Energy Facility Site from KOP #8 (within project site) looking southwest towards Mt. Signal and existing transmission lines within Utility Corridor "N".

SOURCE: BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Views of Solar Energy Facility Site on Imperial County Private Lands from Key Observation Points

FIGURE

3.1-3

F:\projects\1009 Imperial Solar South\2nd Screencheck EIR_EA\Chapter 3\Section 1\Figure 3.1-3 Views of Solar Energy Facility Site.ai

3.2 Land Use

3.2.1 Regulatory Framework

The following describes the land use plans, policies and regulations that are applicable to implementation of the Proposed Action, Alternative 1-Alternative Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site, and Alternative 3-No Action/No Project Alternative. The proposed transmission line corridor is located within BLM lands. Potentially applicable federal land use plans include Title V of the Federal Land Management Policy Act, California Desert Conservation Area Plan, and the Yuha Basin Area of Critical Environmental Concern Management Plan, and Flat-tailed Horned Lizard Rangewide Management Strategy. The solar energy facility site is within the jurisdiction of the County of Imperial. Potentially applicable local land use plans include the County's General Plan and Land Use Ordinance, and the Airport Land Use Compatibility Plan.

3.2.1.1 Federal

A. Bureau of Land Management (BLM)

As discussed above the solar energy facility portion of the project site is located adjacent to land under the jurisdiction of, and maintained by the BLM. The BLM land located adjacent to the solar energy facility portion of the project site is land designated for utility corridor use and is under the Yuha ACEC, FTHL Rangewide Management Strategy and the CDCA Plan for management purposes. The proposed transmission line corridor is located within BLM lands. The following describes the plans applicable to the Proposed Action, Alternative 1-Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site, and Alternative 3-No Action/No Project Alternative.

Federal Land Management Policy Act, 1976 as Amended

The Federal Land Management Policy Act (FLPMA) was originally passed by Congress in 1976. Title V Rights-of-Way of the FLPMA establishes public land policy; guidelines for administration; provides for management, protection, development, and enhancement of public lands; and, provides the BLM authorization to grant rights-of-way. Section 501(a) states that, "The Secretary, with respect to public lands … are authorized to grant, issue, or renew rights-of-way over, upon, under, or through such lands for … " Section 501(a)(4), "systems for generation, transmission, and distribution of electric energy, except that the applicant shall also comply with all applicable requirements of the *Federal Energy Regulatory Commission under the Federal Power Act, including part I thereof …"* and Section 501(a)(6), "roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation except where such facilities are constructed and maintained in connection with commercial recreation facilities on lands in the National Forest System; "

In addition, Section 503 states, "In order to minimize adverse environmental impacts and the proliferation of separate rights-of-way, the utilization of rights-of-way in common shall be required to the extent practical, and each right-of-way or permit shall reserve to the Secretary concerned the right to grant additional rights-of-way or permits for compatible uses on or adjacent to rights-of-way granted pursuant to this Act."

California Desert Conservation Area Plan (as amended 1999)

As described above, Congress passed the FLPMA in 1976, which is a law to direct the management of the public lands of the United States. Section 601 of the FLMPA required that a comprehensive long-range Plan be prepared for the California Desert Conservation Area.

The California Desert Conservation Area (CDCA) Plan (1980) has served as the land-use guide for management of the public lands for the past 19 years. During that time 147 amendments have been approved. Additionally, in 1994, the California Desert Protection Act resulted in many other changes to the CDCA Plan. Since 1999, additional amendments have been made to the plan. The goal of the plan is to provide for the use of public lands, and resources of the California Desert Conservation Area, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible; and, which does not diminish, on balance, the environmental, cultural, and aesthetic values of the Desert and its productivity. The plan provides direction for management actions and resolution conflicts.

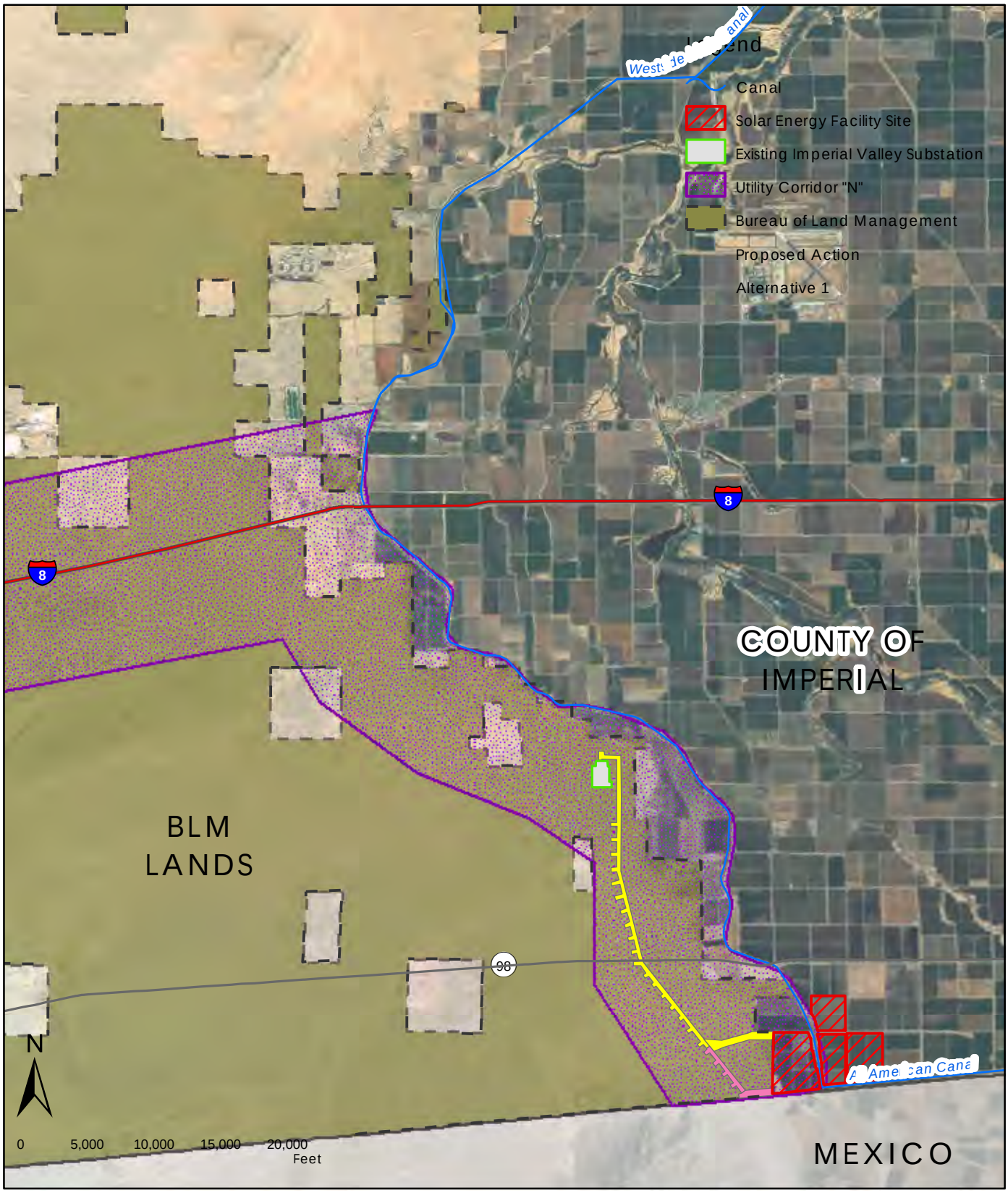
The proposed transmission line corridor component of the Proposed Action is located entirely within the Yuha Basin Area of Critical Environmental Concern (ACEC) of the CDCA Plan. This area is designated as Multiple-Use Class L – Limited Use. The proposed solar energy facility site is located outside of, and immediately adjacent to, the designated ACEC land to the west. Additionally, the proposed access road is located outside of the ACEC.

The Energy Production and Utility Corridors Element identifies planning corridors. The proposed transmission line corridor and access road are located within the designated Utility Corridor "N" (see Figure 3.2-1). Furthermore, as shown in Table 1 Multiple-Use Class Guidelines, within the Limited Use area regarding transmission facilities, "New gas, electric, and water transmission facilities and cables for interstate communication may be allowed only within designated corridors (see Energy Production and Utility Corridors Element)." Furthermore, regarding motorized-vehicle access/transportation, Table 1 indicates, "New roads and ways may be developed under right-of-way grants or pursuant to regulations or approved plans of operation." The CDCA identifies that the planning corridors are a tool for guiding the necessary detailed planning and environmental assessment work which will continue to be required where a right-of-way is requested. The establishment of a planning corridor is not an automatic [grant] of a new right-of-way. Finally, the CDCA states that "utility planning corridors specifically address the expansion of utility facilities constructed for the purpose of telecommunications and bulk transfers of electricity, gas, water, petroleum, and other commodities."

Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan

The Yuha Basin ACEC Management Plan was prepared to provide additional protection to unique cultural resource and wildlife values found in the region while also providing for multiple use management. The ACEC Management Plan allows for the "traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so."

The proposed transmission line corridor is located entirely within the Yuha Basin ACEC of the CDCA for the Flat-tailed Horned Lizard. The proposed solar facility is located on private lands outside of and immediately



SOURCE: Bureau of Land Management, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Utility Corridor "N"

FIGURE 3.2-1

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 2\Figure 3.2-1 Utility Corridor N.mxd

adjacent to the designated ACEC land to the west. Also, the proposed access road is located outside of the ACEC. The ACEC Management Plan encourages surface-disturbing projects to be located outside of Management Areas. However, it does not preclude such projects from the Management Area. If a project must be located within a Management Area, effort should be made to locate the project in a previously disturbed area or in an area where habitat quality is poor and construction should be timed to minimize mortality.

Flat-tailed Horned Lizard Rangewide Management Strategy

The Flat-tailed Horned Lizard Rangewide Management Strategy (ICC, 2003) (hereafter referred to as the Strategy) was prepared to provide guidance for the conservation and management of sufficient habitat to maintain extant populations of flat-tailed horned lizards, a BLM sensitive species, in each of the five Management Areas within the CDCA in perpetuity. The Strategy, originally developed in 1997, was revised in 2003 by the Flat-tailed Horned Lizard Interagency Coordinating Committee (ICC). The ICC signatory members who participated in the writing and discussion of the 2003 revision are from various agencies including Anza-Borrrego State Park, Arizona Game and Fish (Yuma), California State Parks (Ocotillo Wells), U.S. Bureau of Land Management (El Centro, Palm Springs, and Yuma), U.S. Bureau of Reclamation (Yuma), U.S. Fish and Wildlife Service (City of Carlsbad and Phoenix), U.S. Marine Corps Air Station (Yuma), U.S. Naval Air Facility (El Centro), and U.S. Navy SW Division (San Diego). This plan was prepared to provide guidance for the conservation and management of sufficient habitat to maintain extant populations of flat-tailed horned lizards (FTHL) in each of the five Management Areas identified in this plan.

The species is found only in southwestern Arizona, southeastern California, and adjacent portions of Sonora and Baja California Norte, Mexico. On November 29, 1993, the U.S. Fish and Wildlife Service (USFWS) proposed the species for listing as threatened. The Service proposed for a listing due to initial evidence suggesting that the FTHL population was in the decline as a result of habitat loss. However, USFWS withdrew its proposed listing on January 23, 2003, based in part on protections offered by this Strategy. This proposed listing was reinstated and withdrawn several times since January 23, 2003. On March 2, 2010, the USFWS placed a notice in the deferral registrar to reinstate the November 29, 1993 proposed rule to list the FTHL as threatened.

The Strategy encourages surface-disturbing projects to be located outside of Management Areas (MA) whenever possible. However, it does not preclude such projects from the MA. If a project must be located within a MA, effort should be made to locate the project in a previously disturbed area or in an area where habitat quality is poor and construction should be timed to minimize mortality. New right of ways may be permitted only along the boundaries of MA and only if impacts can be mitigated to avoid long-term effects on FTHLs in the MA. Right of ways may be permitted within the boundaries of MA; however, mitigation would need to be incorporated. The cumulative disturbance per Management Area may not exceed 1%. To discourage development in the MAs the mitigation ratio can be as high as 6:1. Based on review of "Figure 7 – Yuha Desert Management Area" of this Strategy, the transmission line corridor is located within the Yuha Desert Management Area for the FTHL. Several planning actions have been developed as recommendations to signatory agencies to ensure that the goal of maintaining a "long-term stable" population within each MA is achieved. Projects that impact FTHL or their habitat shall implement

mitigation measures or pay compensation to minimize impacts. A conference opinion from the USFWS will be obtained by the BLM for FTHL.

Federal Aviation Regulations Part 77

Part 77, Subpart C, of the Federal Aviation Regulations limits the heights of structures, trees, and other objects in the vicinity of an airport within Compatibility Zones C and D to less than 35 feet above the level of the ground. Proponents of a project which may exceed a Part 77 limit must notify the Federal Aviation Administration as required. Currently, there are no such locations near the existing airports in Imperial County. As discussed below, the project site is located approximately six miles south of the Naval Air Facility (NAF), El Centro. According to Figure 3G (Compatibility Map-Naval Air Facility, El Centro) of the Airport Land Use Compatibility Plan (ALUCP), the project site is not located within any of the compatibility zones as identified in the ALUCP. Therefore, Part 77 would not apply to the Proposed Action.

3.2.1.2 Local

County of Imperial General Plan

The purpose of the Imperial County General Plan is to direct growth, particularly urban development, to areas where public infrastructure exists or can be provided, where public health and safety hazards are limited, and where impacts to the County's abundant natural, cultural, and economic resources can be avoided. Ten elements comprise the County of Imperial General Plan. These elements are: Land Use; Housing; Circulation and Scenic Highways; Noise; Seismic and Public Safety; Conservation and Open Space; Agricultural; Geothermal/Alternative Energy and Transmission; and, Water, and Parks and Recreation Element. Together, these elements satisfy the seven mandatory general plan elements as established in the California Government Code. Goals, objectives, and implementing policies and actions programs have been established for each of the elements.

The General Plan designated for the solar energy facility portion of the project site is "Agriculture." The County identifies agricultural land as a form of open space. According to the Conservation and Open Space Element of the General Plan, open space is "any parcel or area of land or water, which is essentially unimproved and devoted to one of the following categories of uses: Preservation of Natural Resources; Managed Production of Resources; Outdoor Recreation; and, Protection of the Public Health and Safety." As such, there are outdoor recreational activities including hunting, bike riding, walking, and bird watching that can take place in agricultural areas.

An analysis of the project's consistency with the General Plan goals and objectives relevant to the Proposed Action is provided in Table 4.2-1 General Plan Consistency Analysis, located in Section 4.2 of this EIR/EA. A detailed analysis of the project's consistency with the General Plan goals, objectives and policies regarding Agriculture is provided in Section 4.9 Agricultural Resources of this EIR/EA.

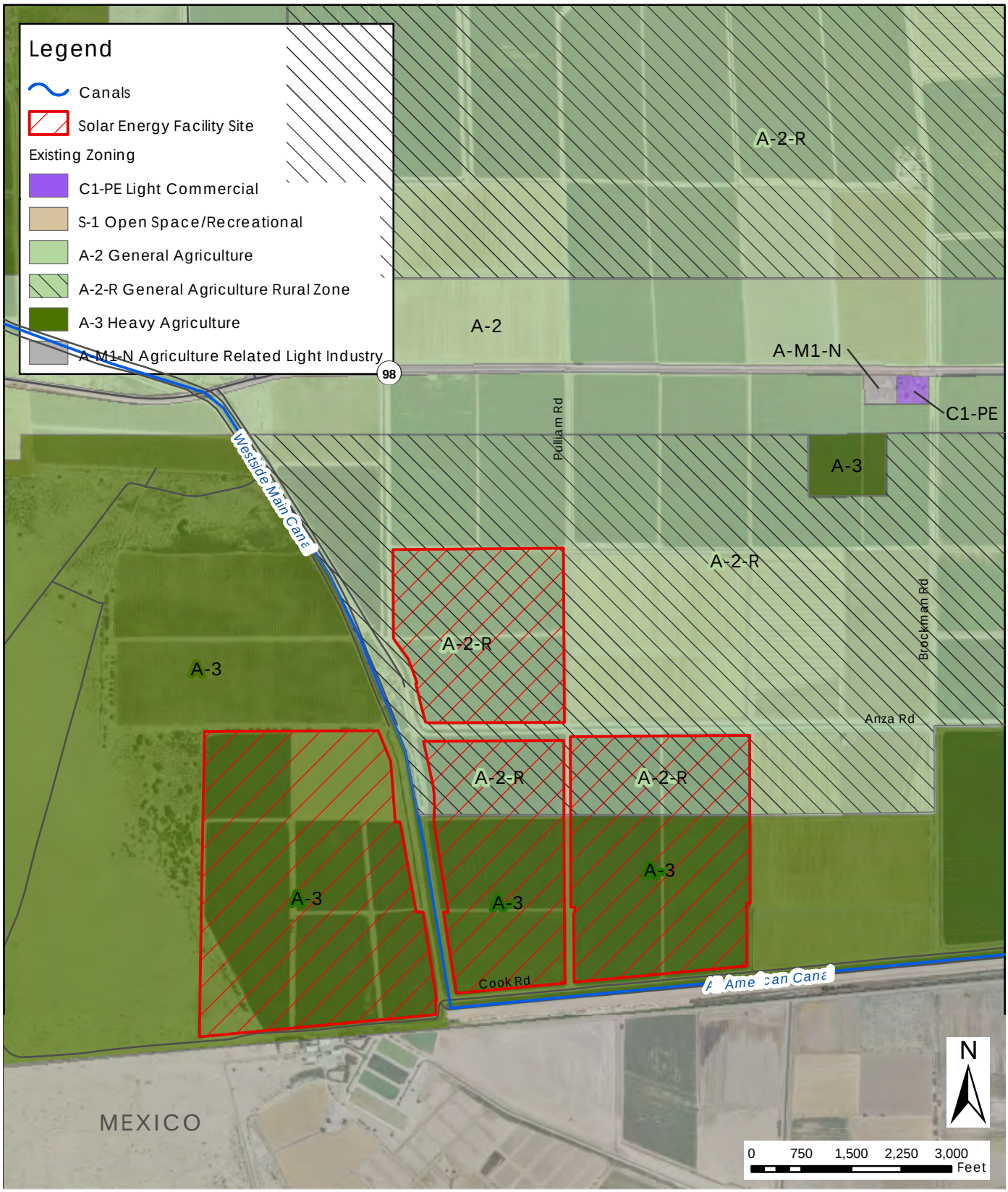
County of Imperial Land Use Ordinance

The County of Imperial Land Use Ordinance provides the physical land use planning criteria, development standards, and regulations for development within the jurisdiction of Imperial County. The purpose of the Land Use Ordinance is to protect the public health, safety and welfare, to provide for orderly development, classify, regulate and where applicable segregate land uses and building uses; to regulate the height and size of buildings; to regulate the area of yards and other open spaces and buildings; to regulate the density of population; and, to provide the economic and social advantages resulting from orderly planned land uses and resources.

As depicted in Figure 3.2-2, the solar energy facility site is zoned General Agriculture Rural (A-2-R) and Heavy Agriculture (A-3). The purpose of the A-2-R zone is to "designate areas that are suitable and intended primarily for agricultural uses (limited) and agricultural related compatible uses" (County of Imperial, 1998). The purpose of the A-3 zone is to "designate areas that are suitable for agricultural land uses; to prevent the encroachment of incompatible uses onto and within agricultural lands; and to prohibit the premature conversion of such lands to non-agricultural uses" (County of Imperial, 1998). Uses in the A-2-R and A-3 zoning designations are limited primarily to agricultural related uses and agricultural activities that are compatible with agricultural uses. Sections 90508.02 and 90509.02 of the Land Use Ordinance lists many uses that are permitted in the A-2-R and A-3 zones, but that require a conditional use permit (CUP). Included in these uses are the following:

- Electrical generation plants (less than 50 mW);
- Electrical power generating plant, excluding nuclear or coal fired;
- Electrical substations in an electrical transmission system (500 kV/230 kV/161 kV);
- Facilities for the transmission of electrical energy (100-200 kV);
- Bio-mass energy conversion plant;
- Major facilities relating to the generation and transmission of electrical energy, provided such facilities are not, under state or federal law, to be approved by an agency or agencies of the state and/or federal governments and provided that such facilities shall be approved subsequent to coordination and review with the Imperial Irrigation District for electrical matters; and,
- Solar energy plants; and,
- Solar energy electrical generator.

Sections 90508.07 and 90509.07 of the Land Use Ordinance apply a 120-foot height limit to all non-residential structures within the A-2-R and A-3 zones. Specifically, Sections 90508.07 (C) and 90509.07 (C) state, " Non-Residential structures and commercial communication towers shall not exceed one hundred twenty (120) feet in height, and shall meet ALUC Plan requirements."



SOURCE: ESRI, 2010; County of Imperial, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Zoning Map

FIGURE 3.2-2

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 2\Figure 3.2-2 Zoning Map.mxd

Adjacent Areas Land Use Designations

Land to the north and east is designated as Agriculture; land to the west is designated at Government; and land to the south is within Mexico and has no land use designation (Figure 3.2-1).

Regional Comprehensive Plan and Regional Transportation Plan

The Southern California Association of Governments' (SCAG) Intergovernmental Review (IGR) section, part of the Environmental Planning division of Planning and Policy, is responsible for performing consistency review of regionally significant local plans, projects, and programs. Regionally significant projects are required to be consistent with SCAG's adopted regional plans and policies such as the Regional Comprehensive Plan and the Regional Transportation Plan. The criteria for projects of regional significance are outlined in CEQA Guidelines Sections 15125 and 15206. According to the SCAG Intergovernmental Review Procedures Handbook, "new or expanded electrical generating facilities and transmission lines" are regionally significant projects. Table 3.2-1 provides a summary of the project's consistency with the SCAG intergovernmental review policies.

Imperial County Airport Land Use Compatibility Plan (ALUCP)

The ALUCP sets forth the criteria and policies, which the Imperial County Airport Land Use Commission will use in assessing the compatibility between the principal airports in Imperial County and proposed land use development in the areas surrounding them. The emphasis of the Plan is on review of local general and specific plans, zoning ordinances, and other land use documents covering broad geographic areas.

State law empowers the Commission to review additional types of land use "actions, regulations, and permits" involving a question of airport/land use compatibility if either: (1) the Commission and the local agency agree that these types of individual projects shall be reviewed by the Commission (Section 21676.5 (b)); or, (2) the Commission finds that a local agency has not revised its general plan or specific plan or overruled the Commission and the Commission requires that the individual projects be submitted for review (Section 21676.5 (a)). The Commission shall review "any request for variance from a local agency's height limitation ordinance." (ALUCP pg. 2-3)

The solar energy facility portion of the project site, is located approximately six miles south of the Naval Air Facility (NAF), El Centro. According to Figure 3G (Compatibility Map-Naval Air Facility, El Centro) of the ALUCP, the solar energy facility site is not located within any of the compatibility zones as identified in the ALUCP. The proposed transmission line corridor is located within BLM lands; therefore, the ALUCP does not apply to this component of the project. Also, the ALUCP does not apply to the portion of the access road located within BLM lands. The ALUCP would apply to the portion of the access road located within private lands; however, no structures are proposed as part of the access road improvements.

TABLE 3.2-1
Project Consistency with Southern California Association of Governments Intergovernmental Review Policies

SCAG IGR Policies	Consistency with IGR Policies	Analysis
3.05: Encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.	Yes	The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site are consistent with this policy. The project is a renewable energy project and would not discourage patterns of urban development and land use, which reduce costs on infrastructure.
3.14: Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.	Yes	The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site would not increase the density of future development, because the project is a renewable energy project and not a residential development. As such, Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site are consistent with this policy.
3.16: Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.	Yes	The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site is a renewable energy project that would provide an additional source of energy for the surrounding area. Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site would not discourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment. The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site is consistent with this policy.

TABLE 3.2-1
Project Consistency with Southern California Association of Governments Intergovernmental Review Policies (cont'd.)

SCAG IGR Policies	Consistency with IGR Policies	Analysis
3.17: Support and encourage settlement patterns which contain a range of urban densities.	Yes	The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site would not increase urban densities, because the project is a renewable energy project and not a residential development. As such, Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site are consistent with this policy.
3.18: Encourage planned development in locations least likely to cause adverse environmental impact.	Yes	Direct, indirect, and cumulative impacts resulting from the proposed project have been identified and mitigated as described in the appropriate sections of this EIR/EA.
RTP G6: Encourage land use and growth patterns that complement our transportation investments and improve the cost-effectiveness of expenditures.	Yes	See discussion under Policy 3.16 above.
GV P1.1: Encourage transportation investments and land use decisions that are mutually supportive.	Yes	See discussion under Policy 3.16 above.
GV P4.2: Focus development in urban centers and existing cities.	Yes	The Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site is a renewable energy project and not a residential or commercial development project that would need to focus its development in urban centers or existing cities. However, the solar energy facility would be developed in Imperial County on land designated as agriculture because this is an allowable use within this zone. As such, Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site are consistent with this policy.

TABLE 3.2-1
Project Consistency with Southern California Association of Governments Intergovernmental Review Policies (cont'd.)

SCAG IGR Policies	Consistency with IGR Policies	Analysis
GV P4.3: Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.	Yes	See discussion under Policy 3.18 above.

Source: BRG Consulting, Inc., 2010.

3.2.2 Affected Environment

3.2.2.1 Regional Setting

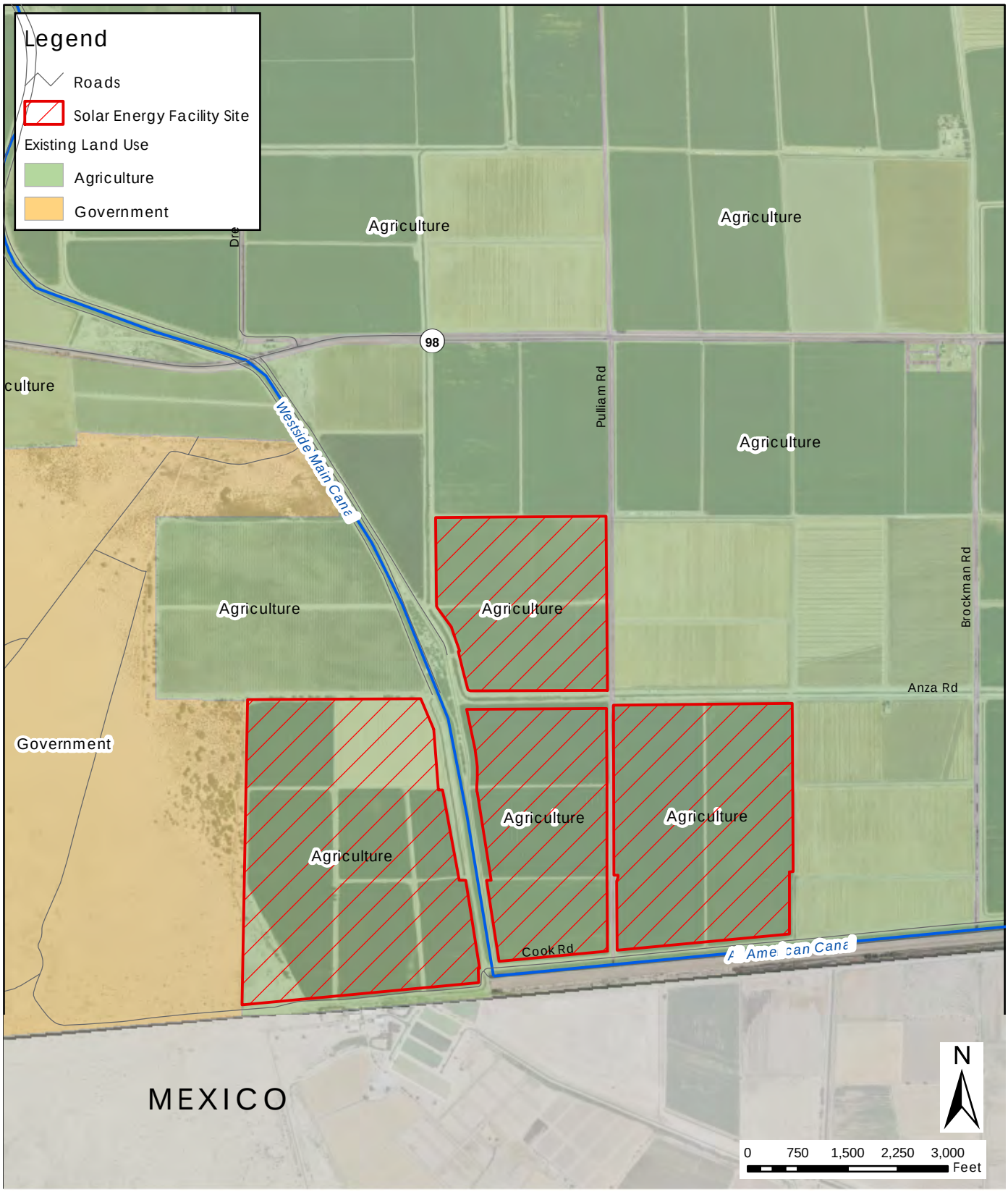
As discussed in Section 2.1.1.1 of this EIR, the site of the proposed solar energy facility is located on 946.6 acres of privately-owned land, undeveloped and agricultural lands. The site is located in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles west of the City of Calexico. Imperial County is located in Southern California, bordering Mexico, west of Arizona, and east of San Diego County. Figure 2-1 depicts the regional location of the property.

3.2.2.2 On-Site Land Uses

The 946.6-gross acre solar energy facility site is generally flat, and the project site is comprised of active agriculture, fallow agriculture, and disturbed lands. Active agriculture land is generally located in the northern, southern, and eastern portions of the solar facility site, with approximately 916.5 acres being utilized for the production of alfalfa, Bermuda grass, and Klein grass. The western portion of the solar energy facility site is comprised of fallow agriculture and disturbed land. The site also contains access roads and irrigation ditches that are associated with the past and current agricultural use of the site. The Imperial Irrigation District (IID) comprises of a network of canals that delivers water for various uses including agriculture irrigation. The IID operated canal identified on-site is the Westside Main Canal. This canal traverses the project site in a north to south direction. Figure 3.2-3 depicts general land uses on and surrounding the project site. Also, Figure 2-3 (Chapter 2.0 Proposed Action and Alternatives) depicts the location of specific features such as the Westside Main Canal.

The proposed transmission corridor is located within primarily undeveloped desert lands; however, a majority of the proposed transmission corridor would be located adjacent to existing transmission facilities that traverse the BLM lands within the Utility Corridor "N" of the Yuha Basin ACEC.

The proposed access road traverses both BLM lands and private land, and is located on the west side of the Westside Main Canal. The proposed access road consists of an existing dirt access road that would be widened by five feet. The area proposed to be widened includes desert land and farmland.



SOURCE: County of Imperial, 2010; ESRI, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Engery Center South

Existing General Plan Land Use Designations

FIGURE 3.2-3

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 2\Figure 3.2-3 Existing General Plan LU.mxd

3.2.2.3 Off-Site Land Uses

The solar energy facility project site is located on the western and southern fringe of developed agricultural lands in the County. Land uses surrounding the project site include the U.S. International Border with Mexico located immediately to the south; Bureau of Land Management (BLM) California Desert Conservation Area Plan (CDCA) "Utility Corridor N" within the Yuha Desert to the west; and, agricultural lands to the north and east. The BLM lands located immediately adjacent to the western boundary of the project site are designated by the BLM for utility corridors. Existing transmission lines are located within the existing utility corridors. The Westside Main Canal, bisecting the solar facility portion of the project site, is owned and operated by the Imperial Irrigation District (IID). Figure 3.2-3 depicts the off-site land uses, as designated by the County of Imperial General Plan.

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3.3 Transportation/Circulation

3.3.1 Regulatory Framework

3.3.1.1 State

California Department of Transportation

The State of California Department of Transportation (Caltrans) is responsible for the design, construction, maintenance, and operation of the California State Highway System. It is also responsible for that portion of the Interstate Highway System within the state's boundaries.

3.3.1.2 Local

County of Imperial Circulation and Scenic Highways Element

The Circulation and Scenic Highways Element requires that developments contribute positively to the County's transportation network and that negative impacts are reduced. For example, requirements include that new developments provide local roads to serve the needs of the development; new developments participate in the improvement of regional roads; maintain acceptable levels of service along the federal and state highways and the local roadway network; and, adopt design standards for all streets in accordance with their functional classifications and recognized design guidelines. All streets within the County shall be designed in accordance with the adopted County of Imperial Design Standards. In addition, construction of private streets in developments is allowed.

3.3.2 Affected Environment

Information contained in this section is summarized from the *Traffic Impact Analysis* prepared by LOS Engineering, Inc. (August 2, 2010). This document is provided on the attached CD of Technical Appendices as Appendix B of this EIR/EA.

3.3.2.1 Methodologies

The number of scenarios to be analyzed in the traffic report was based on the analysis methodology outlined in the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. Based on this study and report policy, the traffic analysis analyzed intersections and segments in the following scenarios to determine the potential impacts:

- Existing conditions;
- Opening Year (2012) without and with Project Conditions (i.e., existing plus project);
- Opening Year (2012) + Cumulative (New Development) Conditions;
- Opening Year (2012) + Cumulative (New Development) + Project Conditions; and,
- Horizon Year (2030) + Project Conditions.

The traffic impact analysis was prepared using the 2000 Highway Capacity Manual's (HCM) operation analysis Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections were measured using the HCM LOS designations ranging from A through F. LOS A represents the best operating conditions and LOS F denotes the worst operating conditions. The individual LOS criterion for each roadway component is provided in the Traffic Impact Analysis (Appendix B of this EIR/EA).

3.3.2.2 Existing Circulation Network

The roadways in the vicinity of the project site that may be impacted by traffic generated by the Proposed Action include Interstate 8 (I-8), Brockman Road, Drew Road, Forrester Road, McCabe Road, Pulliam Road, and State Route 98 (SR-98). Figure 3.3-1 depicts the existing roadways conditions of the traffic analysis study area. The following provides a brief description of each of these roadways:

Interstate 8 (I-8) between Dunaway Road and Imperial Avenue is constructed as a 4 lane divided roadway with 2 lanes in each direction.

Brockman Road between McCabe Road and SR-98 has a classification of Major Collector in the *Imperial County Circulation and Scenic Highway Element Plan.* This roadway is currently constructed as a 2 lane undivided roadway. From SR-98 to Anza Road, the classification for Brockman Road is not listed; however, this portion is constructed as a 2 lane un-divided roadway.

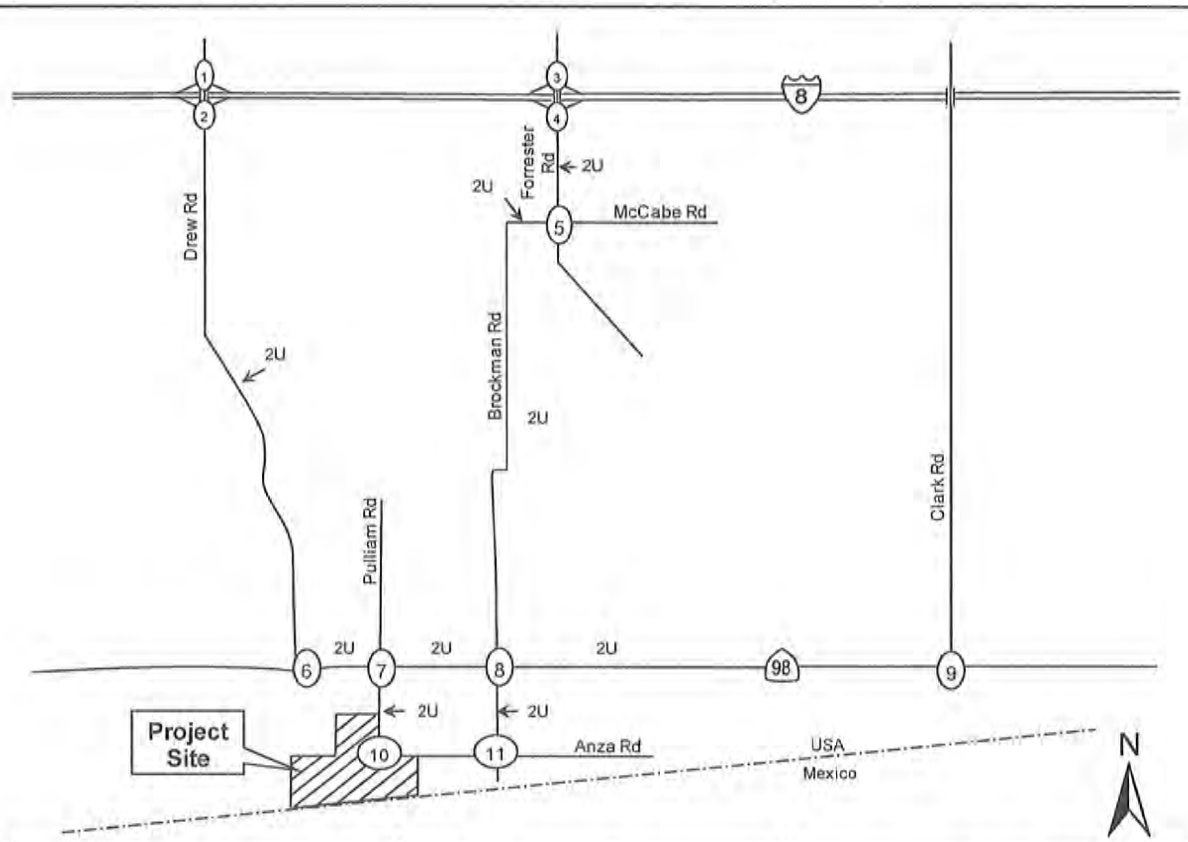
Drew Road between I-8 and SR-98 has a classification of Prime Arterial in the *Imperial County Circulation and Scenic Highway Element Plan*. This roadway is currently constructed as a 2 lane un-divided roadway.

Forrester Road between I-8 and McCabe Road has a classification of Prime Arterial in the *Imperial County Circulation and Scenic Highway Element Plan.* This roadway is currently constructed as a 2 lane un-divided roadway.

McCabe Road between Brockman Road and Forrester Road has a classification of Major Collector in the *Imperial County Circulation and Scenic Highway Element Plan.* This roadway is currently constructed as a 2 lane un-divided roadway.

Pulliam Road between SR-98 and Anza Road is not listed in the *Imperial County Circulation and Scenic Highway Element Plan*; however, this portion is constructed as a 2 lane undivided roadway.

State Route 98 (SR-98) between Drew Road and Clark Road has a classification of State Highway in the *Imperial County Circulation and Scenic Highway Element Plan.* This roadway is currently constructed as a 2 lane un-divided roadway.



SOURCE: LOS Engineering, Inc., 2010

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Imperial Solar Energy Center South

Existing Roadway Conditions

FIGURE 3.3-1

F:\projects\1009 Imperial Solar South\1st Screencheck EIR_EA\Chapter 3\Section 3\Figure 3.3-1 Existing Rd Cond.ai

3.3.2.3 Existing Traffic Volumes (Year 2008)

A. Peak Hour Intersection Performance

Figure 3.3-2 depicts the existing AM, PM, and daily volumes for the project study area intersections during weekday conditions. Table 3.3-1 summarizes the existing weekday intersections level of service (LOS). All intersections currently operate at LOS C or better during both the weekday AM and PM peak hours.

TABLE 3.3-1
Existing Intersection LOS

Intersection and (Analysis) (1)	Movement	Peak Hour	Existing	
			Delay	LOS
Drew Road at I-8 WB Ramp	Minor Leg	AM	9.2	A
		PM	9.0	A
Drew Road at I-8 WB Ramp	Minor Leg	AM	9.6	A
		PM	10.8	B
Drew Road at I-8 EB Ramp	Minor Leg	AM	9.7	A
		PM	9.7	A
Forrester Road at I-8 WB Ramp	Minor Leg	AM	12.4	B
		PM	16.7	C
Forrester Road at McCabe Road	Minor Leg	AM	9.3	A
		PM	9.4	A
SR-98 at Drew Road	Minor Leg	AM	8.6	A
		PM	8.9	A
SR-98 at Pulliam Road	Minor Leg	AM	9.2	A
		PM	8.8	A
SR-98 at Brockman Road	Minor Leg	AM	8.9	A
		PM	9.0	A
SR-98 at Clark Road	Minor Leg	AM	10.4	B
		PM	10.6	B
Pulliam Road at Anza Road	Minor Leg	AM	0.0	A
		PM	0.0	A
Brockman Road at Anza Road	Minor Leg	AM	7.2	A
		PM	8.5	A

Notes: (1) Intersection Control – (S) Signalized, (U) Unsignalized; (2) Delay – HCM Average Control Delay in seconds; (3) LOS = Level of Service.

Source: LOS Engineering, Inc., 2010.

B. Daily Segment Volumes

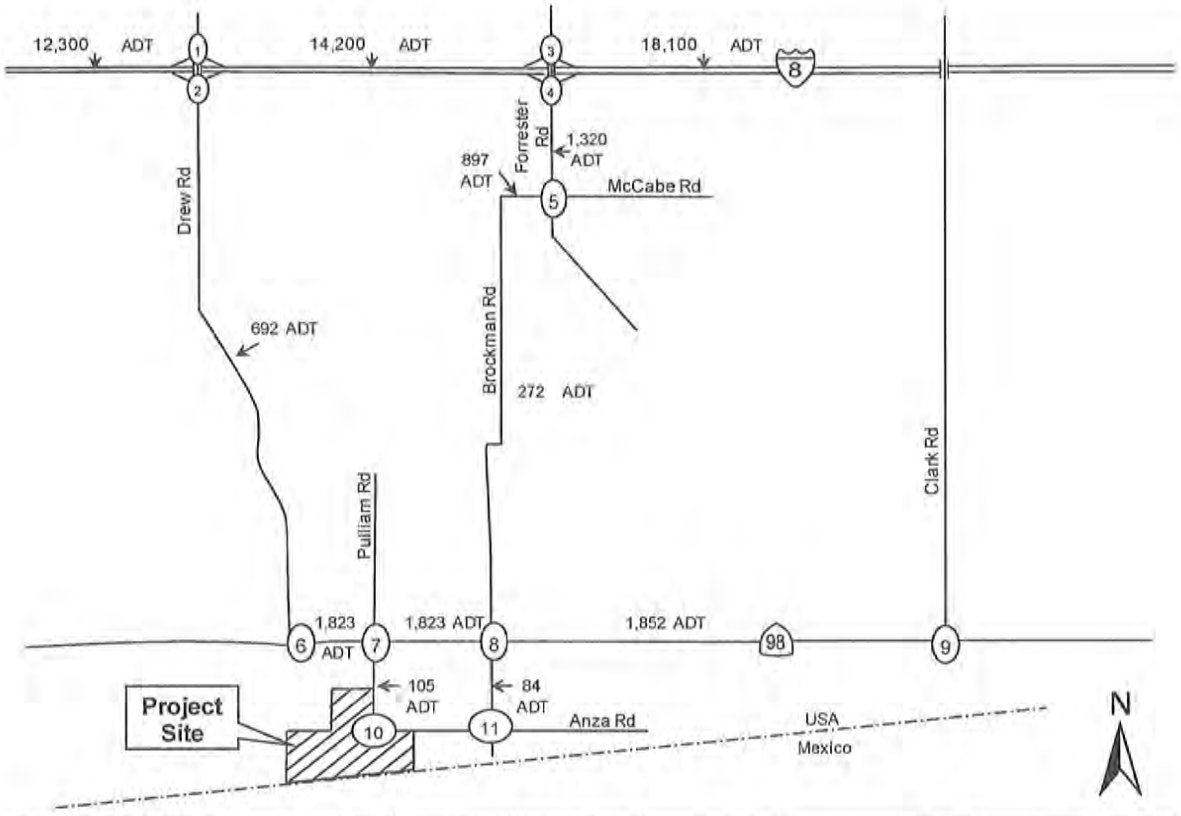
Figure 3.3-2 also identifies the existing ADT's along roadway segments in the project study area during weekday conditions. Table 3.3-2 summarizes the results of the existing daily roadway segment analysis during the weekday conditions. All roadway segments currently operate at LOS A.

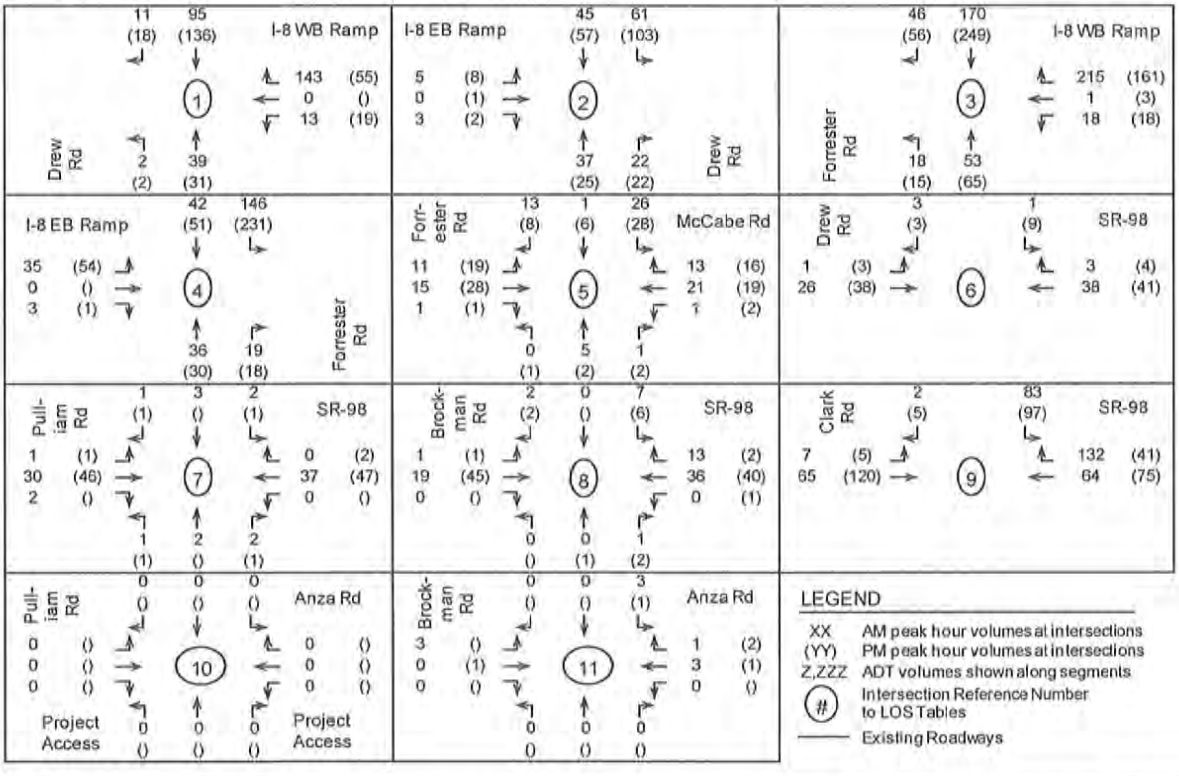
C. Existing Freeway Analysis

Figure 3.3-2 also identifies ADT's along freeway segments in the project area during the weekday conditions. Table 3.3-3 summarizes the results of the existing daily freeway analysis during the weekday conditions. All freeway segments operate at LOS B or better.

3.3.2.4 Year (2012) Conditions

This section analyzes the potential traffic impacts associated with the proposed construction. Specifically, this section documents the Year 2012 conditions when the project is anticipated to be at the peak and





SOURCE: LOS Engineering, Inc., 2010

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BRG CONSULTING, INC.

Imperial Solar Energy Center South

Existing Volumes

FIGURE 3.3-2

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TABLE 3.3-2
Existing Segments LOS

Segment	Classification (as built)	Existing				
		Daily Volume	# of lanes	LOS C Capacity	V/C	LOS
Drew Road						
I-8 to SR-98	Prime Arterial (2U)	692	2	7,100	0.10	A
Brockman Road						
McCabe Rd to SR-98	Major Collector (2U)	272	2	7,100	0.04	A
SR-98 to Anza Rd	Not Listed (2U)	84	2	7,100	0.01	A
Forrester Road						
I-8 to McCabe Rd	Prime Arterial (2U)	1,320	2	7,100	0.19	A
McCabe Road						
Brockman Rd to Forrester Rd	Major Collector (2U)	897	2	7,100	0.13	A
Pulliam Road						
SR-98 to Anza Rd	Not Listed (2U)	105	2	7,100	0.01	A
SR-98						
Drew Rd to Pulliam Rd	State Highway (2U)	1,823	2	7,100	0.26	A
Pulliam Rd to Brockman Rd	State Highway (2U)	1,823	2	7,100	0.26	A
Brockman Rd to Clark Rd	State Highway (2U)	1,823	2	7,100	0.26	A

Notes: Classification based on 1/20/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS = Level of Service. LOS is based on actual number of lanes currently constructed. V/C = Volume to Capacity ratio.
Source: LOS Engineering, Inc., 2010.

TABLE 3.3-3
Existing Freeway Volumes LOS

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road				I-8 Forrester Road to Imperial Avenue			
Existing (Year 2008)												
ADT	12,300				14,200				18,100			
Peak Hour	AM		PM		AM		PM		AM		PM	
Direction	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2	2	2	2	2
Capacity (1)	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor (2)	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor (3)	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor (4)	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	413	1,044	595	1,243	477	1,206	687	1,435	608	1,537	876	1,830
Volume to Capacity	0.088	0.222	0.127	0.265	0.102	0.256	0.146	0.305	0.129	0.327	0.186	0.389
LOS	A	A	A	A	A	A	A	B	A	B	A	B

Notes: ADT = Average Daily Trips; LOS = Level of Service; (1) Capacity of 2,350 pcphpl from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002. (2) Latest K factor from Caltrans (based on 2009 report), which is the percentage of AADT in both directions. (3) Latest D factor from Caltrans (based on 2009 report), which when multiplied by K and ADT will provide peak hour volume. (4) Latest truck factor from Caltrans (based on 2008 report).
Source: LOS Engineering, Inc., 2010.

midpoint of construction activities. Background year 2012 volumes were calculated by increasing year 2010 volumes by 5.6% as depicted on Figure 3.3-3. The following describes the intersection, segment, and freeway LOS for the project study area during the Year 2012 conditions.

A. Peak Hour Intersection Performance

Figure 3.3-3 depicts the Year 2012 AM, PM, and daily traffic volumes for the project study area intersections. Table 3.3-4 summarizes the Year 2012 weekday intersections LOS. All intersections operate at LOS C or better during both the Year 2012 weekday AM and PM peak hours.

TABLE 3.3-4
Year (2012) Intersection LOS

Intersection and (Analysis) (1)	Movement	Peak Hour	Existing	
			Delay	LOS
Drew Road at I-8 WB Ramp	Minor Leg	AM	9.2	A
		PM	9.0	A
Drew Road at I-8 WB Ramp	Minor Leg	AM	9.7	A
		PM	10.9	B
Drew Road at I-8 EB Ramp	Minor Leg	AM	9.9	A
		PM	9.8	A
Forrester Road at I-8 WB Ramp	Minor Leg	AM	12.7	B
		PM	17.8	C
Forrester Road at McCabe Road	Minor Leg	AM	9.4	A
		PM	9.4	A
SR-98 at Drew Road	Minor Leg	AM	8.6	A
		PM	9.0	A
SR-98 at Pulliam Road	Minor Leg	AM	9.2	A
		PM	8.9	A
SR-98 at Brockman Road	Minor Leg	AM	8.9	A
		PM	9.0	A
SR-98 at Clark Road	Minor Leg	AM	10.5	B
		PM	10.8	B
Pulliam Road at Anza Road	Minor Leg	AM	0.0	A
		PM	0.0	A
Brockman Road at Anza Road	Minor Leg	AM	7.2	A
		PM	8.5	A

Notes: (1) Intersection Control – (S) Signalized, (U) Unsignalized; (2) Delay – HCM Average Control Delay in seconds; (3) LOS = Level of Service.

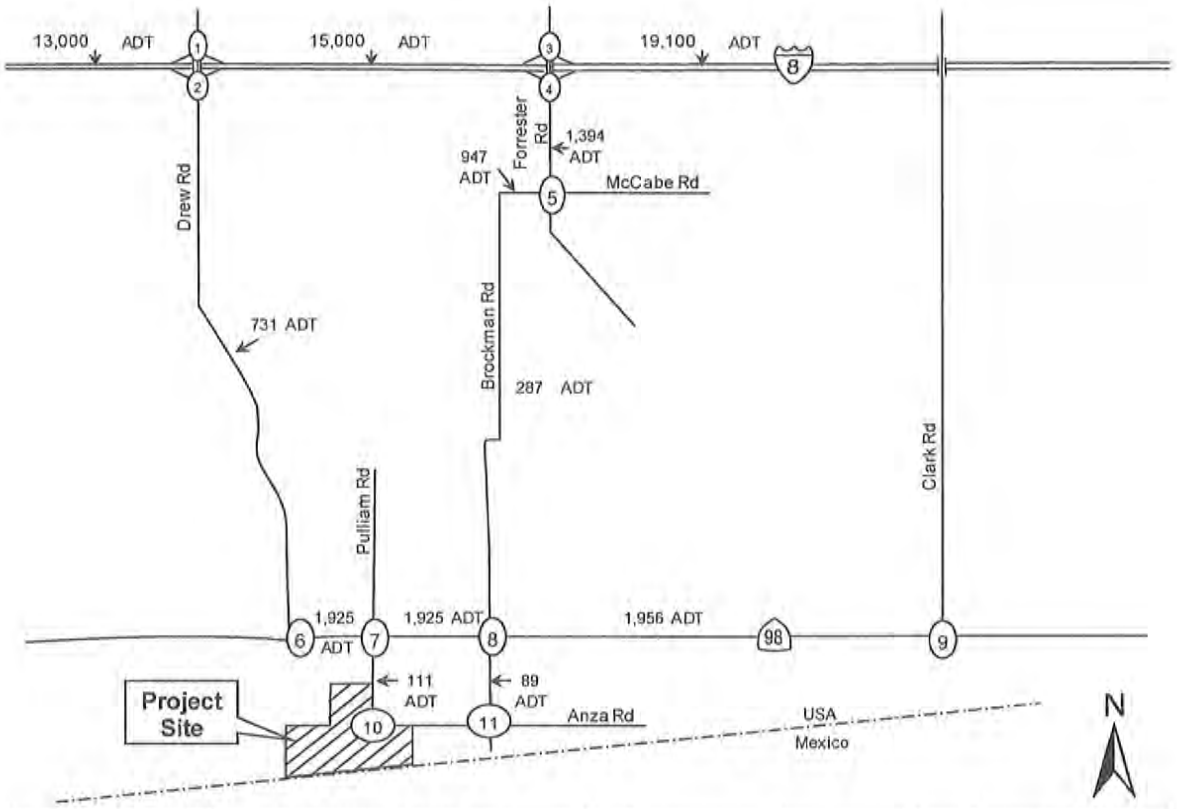
Source: LOS Engineering, Inc., 2010.

B. Daily Segment Volumes

Figure 3.3-3 also identifies the existing ADT's along roadway segments in the project study area during the Year 2012 conditions. Table 3.3-5 summarizes the results of the Year 2012 daily roadway segment analysis during the weekday conditions. All roadway segments during the Year 2012 operate at LOS B or better.

C. Existing Freeway Analysis

Figure 3.3-3 also identifies ADT's along freeway segments in the project area during the Year 2012 conditions. Table 3.3-6 summarizes the results of the Year 2012 daily freeway analysis during the weekday conditions. All freeway segments operate at LOS B or better.



SOURCE: LOS Engineering, Inc., 2010

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Imperial Solar Energy Center South

Year 2012 Volumes

FIGURE 3.3-3

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Table 3.3-5
Year (2012) Segments LOS

Segment	Classification (as built)	Existing				
		Daily Volume	# of lanes	LOS C Capacity	V/C	LOS
Drew Road						
I-8 to SR-98	Prime Arterial (2U)	731	2	7,100	0.10	A
Brockman Road						
McCabe Rd to SR-98	Major Collector (2U)	287	2	7,100	0.04	A
SR-98 to Anza Rd	Not Listed (2U)	89	2	7,100	0.01	A
Forrester Road						
I-8 to McCabe Rd	Prime Arterial (2U)	1,394	2	7,100	0.20	A
McCabe Road						
Brockman Rd to Forrester Rd	Major Collector (2U)	947	2	7,100	0.13	A
Pulliam Road						
SR-98 to Anza Rd	Not Listed (2U)	111	2	7,100	0.02	A
SR-98						
Drew Rd to Pulliam Rd	State Highway (2U)	1,925	2	7,100	0.27	B
Pulliam Rd to Brockman Rd	State Highway (2U)	1,925	2	7,100	0.27	B
Brockman Rd to Clark Rd	State Highway (2U)	1,956	2	7,100	0.28	B

Notes: Classification based on 1/20/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS = Level of Service. LOS is based on actual number of lanes currently constructed. V/C = Volume to Capacity ratio.

Source: LOS Engineering, Inc., 2010.

TABLE 3.3-6
Year (2012) Freeway Volumes LOS

Freeway Segment	I-8 Dunaway Road to Drew Road				I-8 Drew Road to Forrester Road				I-8 Forrester Road to Imperial Avenue			
Existing (Year 2008)												
ADT	12,300				14,200				18,100			
Peak Hour	AM		PM		AM		PM		AM		PM	
Direction	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
Number of Lanes	2	2	2	2	2	2	2	2	2	2	2	2
Capacity (1)	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700
K Factor (2)	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517	0.1076	0.0963	0.0917	0.1517
D Factor (3)	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581	0.2616	0.7384	0.4419	0.5581
Truck Factor (4)	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376	0.8376
Peak Hour Volume	413	1,044	595	1,243	477	1,206	687	1,435	608	1,537	876	1,830
Volume to Capacity	0.088	0.222	0.127	0.265	0.102	0.256	0.146	0.305	0.129	0.327	0.186	0.389
LOS	A	A	A	A	A	A	A	B	A	B	A	B

Notes: ADT = Average Daily Trips; LOS = Level of Service; (1) Capacity of 2,350 pcphpl from CALTRANS' Guide for the Preparation of Traffic Impact Studies, December 2002. (2) Latest K factor from Caltrans (based on 2009 report), which is the percentage of AADT in both directions. (3) Latest D factor from Caltrans (based on 2009 report), which when multiplied by K and ADT will provide peak hour volume. (4) Latest truck factor from Caltrans (based on 2008 report).

Source: LOS Engineering, Inc., 2010.

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3.4 Air Quality

3.4.1 Regulatory Framework

3.4.1.1 Federal

Clean Air Act

The federal Clean Air Act requires areas with unhealthy levels of criteria pollutants to develop plans, known as State Implementation Plans (SIPs), describing how and when they will attain the National Ambient Air Quality Standards (NAAQS). SIPs are not single documents; rather they are a compilation of state and local regulations (i.e., new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls) that a state uses to achieve healthy air quality under the Federal Clean Air Act (CARB, 2007c). State and local agencies must involve the public in the adoption process before SIP elements are submitted to the Environmental Protection Agency (EPA) for approval or disapproval, and the EPA must provide an opportunity for public comment before taking action on each SIP submittal. If the SIP is not acceptable to the EPA, the EPA can take over enforcing the Clean Air Act in that state (U.S. EPA, 2006).

The 1990 amendments to the federal Clean Air Act set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the new national 8-hour O_3 standard and the fine particulate matter ($PM_{2.5}$) standards in 1997 resulted in additional statewide air quality planning efforts. In response to new federal regulations, future SIPs will also address ways to improve visibility in national parks and wilderness areas.

The consistency of future projects with the SIP would be assessed through the land use and growth assumptions that are incorporated into the air quality planning document. If a Proposed Action is consistent with the applicable General Plan of the jurisdiction where it is located, then the project presumably has been anticipated within the regional air quality planning process. Such consistency would ensure that the project would not have an adverse regional air quality impact. If the relocation or change of vehicular emission patterns from a Proposed Action would not create any further unacceptable microscale impacts immediately adjacent to the Proposed Action area, then the project would have a less than significant air quality impact.

National Ambient Air Quality Standards

The EPA established ambient air quality standards for specific pollutants. These standards are called the National Ambient Air Quality Standards (NAAQS). Table 3.4-1 identifies the federal air quality standard for specific pollutants. In general, an area is designated as attainment if the concentration of a particular air pollutant does not exceed the standard for that pollutant. An area is designated as nonattainment for a pollutant if the standard for that pollutant is exceeded.

TABLE 3.4-1
California and Federal Ambient Air Quality Standards

Pollutant	Average Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	———	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.08 ppm (157 µg/m³)[8]		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		———		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		———	———	———
Nitrogen Dioxide (NO_2)*	Annual Arithmetic Mean	0.030 ppm (56 µg /m³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (338 µg/m³)		———		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	———	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	———	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	———	
	3 Hour	———		———	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		———	———	
Lead[8]	30 Day Average	1.5 µg/m³	Atomic Absorption	———	———	———
	Calendar Quarter	———		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption

TABLE 3.4-1
California and Federal Ambient Air Quality Standards (cont'd.)

Pollutant	Average Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	*Method*[4]	*Primary*[3,5]	*Secondary*[3,6]	*Method*[7]
Visibility Reducing Particles	8 Hour	Extinction of coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[8]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes: * Nitrogen dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law, expected in late 2007.

(1) California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

(2) National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24 hour average concentration above 150 µg/m³ is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further classification and current federal policies.

(3) Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25º C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25º C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

(4) Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

(5) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

(6) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

(7) Reference method as described by the EPA. An "equivalent method" of measurement may be used, but must have a "consistent relationship to the reference method" and must be approved by the EPA.

(8) The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (2/22/07)

3.4.1.2 State

California Ambient Air Quality Standards

Individual states have the option to add additional pollutants, require more stringent compliance, or include different exposure periods, then adopt changes as their own state standards. The California Air Resources Board (CARB) subsequently established the more stringent California Ambient Air Quality Standards (CAAQS). Table 3.4-1 identifies the state air quality standard for specific pollutants. The CARB, in conjunction with local air pollution control districts, monitors ambient air quality at approximately 250 air-monitoring stations across the state.

3.4.1.3 Regional

Regional Air Quality Management

Local air quality is evaluated in terms of United States and California ambient (outside) air quality standards. The Federal Clean Air Act of 1970, as amended, was established in an effort to assure that acceptable levels of air quality are maintained in all areas of the United States. Pursuant to the CAA, the EPA is responsible for setting national standards, monitoring and enforcement of air quality levels. The primary air quality standards are based upon health-related exposure limits (NAAQS). The primary NAAQS establish maximum allowable concentrations of specific pollutants in the atmosphere and characterize the amount of exposure deemed safe for the public. The EPA also is charged with setting secondary standards to protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Pursuant to the CAA, the EPA establishes national air quality standards for six air pollutants. Monitoring of ambient air quality in Imperial County began in 1976. Since that time, monitoring has been performed by the ICAPCD, CARB, and by private industry. Ambient monitoring is typically performed either in locations representative of where people live and work or near industrial sources to document the air quality impacts of those facilities. As of March 1991, nine public agency and private sector monitoring stations were in active service in the county (Imperial County General Plan, 1993).

Southern California Association of Governments

The Southern California Association of Governments (SCAG), is the designated Metropolitan Planning Organization for Los Angeles, Ventura, Orange, San Bernardino, Riverside and Imperial counties. To monitor regional development, CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse" collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects, plans, and programs every month. Projects and plans that are Regionally Significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies. The applicable SCAG goal for this analysis is Regional Transportation (RTP) Goal 5: Protect the environment, improve air quality and promote energy efficiency, as discussed in Table 3.4-2.

TABLE 3.4-2
Project Consistency with Applicable SCAG Regional Transportation Plan Goals

Regional Transportation Plan Goal	Consistency with RTP	Analysis
Protect the environment, improve air quality and promote energy efficiency	Yes	Impacts to the environment resulting from the Proposed Action are evaluated throughout this EIR/EA. Please refer to Section 7.0 Effects Found Not to Be Significant for a discussion of energy efficiency. With respect to air quality, the project will be implementing mitigation measures consistent with measures described in ICAPCD regulations and the ICAPCD CEQA Air Quality Handbook in order to ensure project air quality impacts do not rise to the level of significance.

Source: SCAG Regional Transportation Plan, 2008.

3.4.1.4 Local

Ozone Air Quality Management Plan

Based on Imperial County's "moderate" nonattainment status for 1997 federal 8-hour ozone standards, Imperial County Air Pollution Control District (ICAPCD) is required to develop an 8-hour Attainment Plan for Ozone. Recently ICAPCD found that Imperial County had no violations of the 8-hour ozone standard for 2008. This determination effectively suspends the requirement for the state to submit an attainment demonstration, a reasonable further progress plan, contingency measure and other planning requirements for so long as Imperial County continues to attain the 1997 8-hour ozone standard. Because this determination does not constitute a re-designation to attainment under the Clean Air Act Section 107(d)(3), the designation status will remain "moderate" nonattainment for the 1997 8-hour ozone standard. However, ICAPCD is required to submit a Modified Air Quality Management Plan (AQMP) to the EPA for approval. The final "Modified" 2009 8-hour Ozone Air Quality Management Plan was adopted by ICAPCD on July 13, 2010.

Particulate Matter State Implementation Plan

Imperial Valley is classified as nonattainment for federal and state PM_{10} standards. As a result, ICAPCD is required to develop a PM_{10} Attainment Plan. The final plan was adopted by ICAPCD on August 11, 2009.

Imperial County General Plan

The General Plan Conservation and Open Space Element policies related to the Proposed Action are identified below. Table 3.4-3 summarizes the project's consistency with the applicable General Plan air quality policies.

While this EIR/EA analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

TABLE 3.4-3
Project Consistency with Applicable General Plan Air Quality Policies

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element		
Ensure that all facilities shall comply with current federal and state requirements for attainment for air quality objectives.	Yes	All project facilities would comply with current federal and State requirements for attainment for air quality objectives through the implementation of mitigation measures (see Section 4.4).
Cooperate with all federal and state agencies in the effort to attain air quality objectives.	Yes	The project applicant would cooperate with all federal and State agencies in the effort to attain air quality objectives through the implementation of mitigation measures provided in Section 4.4.

Source: County of Imperial General Plan Conservation and Open Space Element, 1993.

ICAPCD Rules

Regulation VIII – Fugitive Dust Rules contains rules to reduce the amount of fugitive dust (PM_{10}) generated from anthropogenic (manmade) sources within Imperial County. The rules require actions to prevent, reduce, or mitigate the PM_{10} emissions (Imperial County Air Pollution Control District, 2006). Specifically, the project must adhere to Rule 801-Construction and Earthmoving Activities, Rule 805-Paved and Unpaved Road, and Rule 806-Conservation Management Practices to reduce PM_{10} emissions. Best Available Control Measures to reduce fugitive dust during construction and earthmoving activities include but are not limited to:

- phasing of work in order to minimize disturbed surface area;
- application of water or chemical stabilizers to disturbed soils;
- construction and maintenance of wind barriers; and,
- use of a Track-Out control device or wash down system at access points to paved roads.

Compliance with Regulation VIII is mandatory on all construction sites, regardless of size. However, compliance with Regulation VIII does not constitute mitigation under the reductions attributed to environmental impacts.

In addition, compliance for the Proposed Action includes: 1) the development of a dust control plan for the construction and operational phase; and, 2) notification to the Air District is required 10 days prior to the commencement of any construction activity. Furthermore, any use of engine(s) and/or generator(s) of 50 horsepower or greater may require a permit through the Air District.

3.4.2 Affected Environment

Information contained in this section is summarized from the *Construction Air Quality Conformity Assessment, Imperial Solar Energy Center South, Imperial County, California* prepared by Investigative Science and Engineering, Inc. (ISE) (August 17, 2010). This document is provided on the attached CD of Technical Appendices as Appendix C1 of this EIR/EA.

3.4.2.1 Regional and Local Climate

The Proposed Action is located within the boundaries of the Imperial Air Pollution Control District, and is located within the Salton Sea Air Basin (SSAB). The SSAB, which contains part of Riverside County and all of Imperial County, is governed largely by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in winter when the high is weakest and farthest south. When the fringes of mid-latitude storms do pass through the Imperial Valley in winter, the coastal mountains create a strong "rainshadow" effect that makes Imperial Valley second only to Death Valley as the driest location within the United States. The flat terrain near the Salton Sea, intense solar heating by day and strong radiational cooling at night create deep convective thermals during the daytime, but equally strong surface-based temperature inversions at night. The inversions and light nocturnal winds trap any local air pollution emissions near the ground with frequently hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and convective activity begins.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature oscillations ranging from average summer maxima of 108° F down to winter morning minima of 38° F. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences significant (>0.10" in 24 hours) rainfall an average of only four times per year. The local area usually has three days of rain in winter and one thunderstorm day in August, when moisture from the Gulf of California or even the Gulf of Mexico enters the Imperial Valley from the southeast across Mexico and Arizona. The annual rainfall in this arid region is less than three inches per year.

Winds in the area are driven by a complex pattern of local, regional and global forces, but primarily reflect the temperature difference between the cool ocean to the west and the heated interior of the entire desert southwest. Area wind measurements indicate that there are two major wind regimes that dominate airflow distributions. For much of the year, winds flow predominantly from the west to the east. In summer,

intense solar heating in the Imperial Valley creates a more localized wind pattern, as air comes up from the southeast via the Gulf of California. During periods of strong solar heating and intense convection, turbulent motion creates good mixing and low levels of air pollution. However, even strong turbulent mixing is insufficient to overcome the limited air pollution controls on sources in the Mexicali (Mexico) area. Imperial County is predominately comprised of agricultural land and as such, is a factor in the cumulative air quality of the SSAB. The nature of producing food and crops generates dust and small particulate matter. Dust and particulate matter can be emitted into the air with use of agricultural equipment on unpaved roads, land preparation, and harvest practices. The project area thus experiences unhealthful air quality from photochemical smog and from dust due to extensive surface disturbance and the very arid climate.

3.4.2.2 Major Air Pollutants

Air quality is determined by comparing the ambient air concentration of specific pollutants to the "standards" set by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Control Board (CARB). The "standards" were established under the Federal and State Clean Air Acts, to protect the public's health and welfare. The EPA established the National Ambient Air Quality Standards (NAAQS) for six principal air pollutants (also called criteria pollutants): carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$) and lead (Pb). Criteria pollutants are the most common air pollutants and are widely distributed across the country. In addition to the criteria pollutants, the California Ambient Air Quality Standards (CAAQS) establish standards for sulfates, hydrogen sulfide (H_2S), reactive organic gases (ROG), visibility reducing particles, and vinyl chloride.

Descriptions and sources of the criteria pollutants are identified below:

1. Carbon Monoxide – Carbon monoxide (CO) is a colorless, odorless, tasteless and toxic gas resulting from the incomplete combustion of fossil fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria air pollutant.

2. Oxides of Sulfur – Oxides of Sulfur (SO_x), typically is a strong smelling, colorless gas that is formed by the combustion of fossil fuels. Sulfur dioxide (SO_2) and other sulfur oxides contribute to the problem of acid deposition. SO_2 is a criteria pollutant.

3. Nitrogen Oxides – Oxides of Nitrogen, or NO_X, which consists of nitric oxide (NO), nitrogen dioxide (NO_2), and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides (NO_x), the generic term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts, play a major role in the formation of ozone, particulate matter, haze, and acid rain. Nitrogen oxides are typically created during combustion processes such as those that occur in automobiles and power plants. NO_2 is a reddish brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO) and is a criteria pollutant. Home heaters and gas stoves can also produce substantial amounts of NO_2 in indoor settings. Natural sources include lightning and biological processes in soil.

4. Ozone (O_3) – Ozone (O_3) is a strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the sun's energy. Ozone exists in the upper atmosphere ozone layer as well as at the earth's surface and is a product of the photochemical process involving the sun's energy. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. Ozone is formed in the atmosphere by the reaction of VOCs and NO_X in the presence of sunlight, which is most abundant in the summer. Changing weather patterns contribute to yearly differences in ozone concentrations. Ozone is a major component of smog. VOCs are often targeted in efforts to control smog.

5. Particulate Matter (PM_{10} and $PM_{2.5}$).

   PM_{10} (Particulate Matter less than 10 microns) – Is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.

   $PM_{2.5}$ (Particulate Matter less than 2.5 microns) – A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions.

6. Lead (Pb) – A malleable metallic element of bluish-white appearance that readily oxidizes to a grayish color. Lead is a toxic substance that can cause damage to the nervous system or blood cells. Automotive sources were historically the major contributor of lead emissions. However, the use of lead in gasoline, paints, and plumbing compounds has been strictly regulated or eliminated such that today it poses a very small risk. Currently, as a result of a reduction in the amount of lead in gasoline, lead emissions from the transportation sector has greatly declined over the past few decades. Today, industrial processes, primarily metals processing, are the major source of lead emissions to the atmosphere. The highest air concentrations of lead are usually found in the vicinity of smelters and battery manufacturers.

7. Volatile Organic Compounds (VOCs), Reactive Organic Gases, (ROGs) – Volatile Organic Compounds (VOCs) and Reactive Organic Gases (ROGs) are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. ROG is similar to VOC and is also a precursor pollutant in forming O_3. ROG consists of compounds containing methane, ethane, propane, butane, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_x react in the presence of light.

8. Reactive Organic Gases (ROG) – Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone, and consist of compounds containing methane, ethane, propane, butane, and

longer chain hydrocarbons which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight.

9. Hydrogen Sulfide(H_2S) – A colorless, flammable, poisonous compound. It often results when bacteria break down organic matter in the absence of oxygen. High concentrations of 500-800 ppm can be fatal and lower levels cause eye irritation and other respiratory effects.

10. Sulfates – An inorganic ion that is generally naturally occurring and is one of several classifications of minerals containing positive sulfur ions bonded to negative oxygen ions.

11. Visibility Reducing Particles (VRP) – Small particles that occlude visibility and/or increase glare of haziness.

Table 3.4-4 provides a summary of the most relevant health effects caused by the criteria air pollutants.

TABLE 3.4-4
Health Effects of Criteria Air Pollutants

Air Pollutant	Health Effects
Carbon Monoxide (CO)	Reduces ability of blood to bring oxygen to body cells and tissues; cells and tissues need oxygen to work. CO may be particularly hazardous to people who have heart or circulatory (blood vessel) problems and people who have damaged lungs or breathing passages.
Sulfur Dioxide (SO_2)	Breathing problems; may cause permanent damage to lungs.
Nitrogen Dioxide (NO_2)	Lung damage, illnesses of breathing passages and lungs (respiratory system).
Ozone (O_3)	Breathing problems, reduced lung function, asthma, irritates eyes, stuffy nose, reduced resistance to colds or other infections, and may speed up aging of lung tissue.
Particulate Matter (PM)	Nose and throat irritation, lung damage, bronchitis, early death.
Lead (Pb)	Brain and other nervous system damage; children are at special risk. Some lead-containing chemicals cause cancer in animals. Lead causes digestive and other health problems.

Source: U.S. EPA, 2006.

3.4.2.3 Regional and Local Conditions

The SSAB is under the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD). Air quality conditions are monitored at seven locations within the Imperial County portion of the SSAB. Five of these locations are monitored under ICAPCD jurisdiction, while two locations in Calexico are monitored under CARB's jurisdiction. The ICAPCD is primarily responsible for monitoring air quality within the ICAPCD, enforcing regulations for new and existing stationary sources within the Imperial County portion of SSAB, and planning, implementing, and enforcing programs designed to attain and maintain state and federal

ambient air quality standards within the AQMD. Mobile source emissions are regulated by CARB in conjunction with the ICAPCD. Local sources of air pollution include motor vehicles and agricultural equipment and operations (CARB, 2007a).

A. Criteria Pollutants

Currently, the SSAB is either in attainment or unclassified for all federal and state air pollutant standards with the exception of:

- O_3 (eight-hour);
- total suspended particulate matter less than 10 microns in diameter (PM_{10}); and,
- total suspended particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

Imperial County is classified as a "serious" non-attainment area for PM_{10}, and a "moderate" non-attainment area for 8-hour O_3 for the NAAQS, and non-attainment for $PM_{2.5}$ for the urban areas of Imperial County. Air pollutants transported into the SSAB from the adjacent South Coast Air Basin (Los Angeles, San Bernardino County, Orange County, and Riverside County) and from Mexicali (Mexico) substantially contribute to the non-attainment conditions in the SSAB. Figure 3.4-1 depicts the SSAB in relation to the other air basins in Southern California.

As depicted in Figure 3.4-2, the nearest air quality monitoring stations to the proposed solar energy facility project site and transmission lines are located within the City of Calexico (1029 Belcher Street, Calexico, CA 92231, ARB Station ID 13698) and within the City of El Centro (150 9th Street, El Centro, CA 92243, ARB Station ID 13694). Calexico Station is located approximately 10.4 miles east of the solar energy facility site. It currently records CO, SO_2, NO_2, O_3, PM_{10}, and $PM_{2.5}$. El Centro Station is located approximately 10.7 miles northeast of the solar energy facility site. This station currently records CO, NO_2, O_3, PM_{10}, and $PM_{2.5}$. Both air quality monitoring stations record Outdoor Temperature, Wind Direction, Horizontal Wind Speed, and Barometric Pressure. Other stations within the project vicinity present either incomplete or redundant data or were determined not to be representative of localized ambient air quality conditions present at the project site. Due to the type of equipment employed at each station, not every station is capable of recording the entire set of criteria pollutants previously identified in Table 3.4-4. Periodic audits are conducted to ensure calibration conformance in accordance with the EPA.

3.4.2.4 Sensitive Receptors

High concentrations of air pollutants pose health hazards for the general population, but particularly for the young, the elderly, and the sick. Typical health problems attributed to smog include respiratory ailments, eye and throat irritations, headaches, coughing, and chest discomfort. Certain land uses are considered to be more sensitive to the effects of air pollution. Schools, hospitals, residences, and other facilities where people congregate, especially children, the elderly and infirm, are considered particularly sensitive to air pollutants. The proposed project site is surrounded by agricultural lands to the north and east and federal lands under the jurisdiction of the BLM immediately to the west. These land uses are not developed or considered sensitive. As such, no sensitive receptors are in the project area.

SOURCE: CA Air Resources Board, 2010; ESRI, 2010; BRG Consulting, Inc., 2010 8/19/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Air Pollution Control District Boundaries

FIGURE 3.4-1

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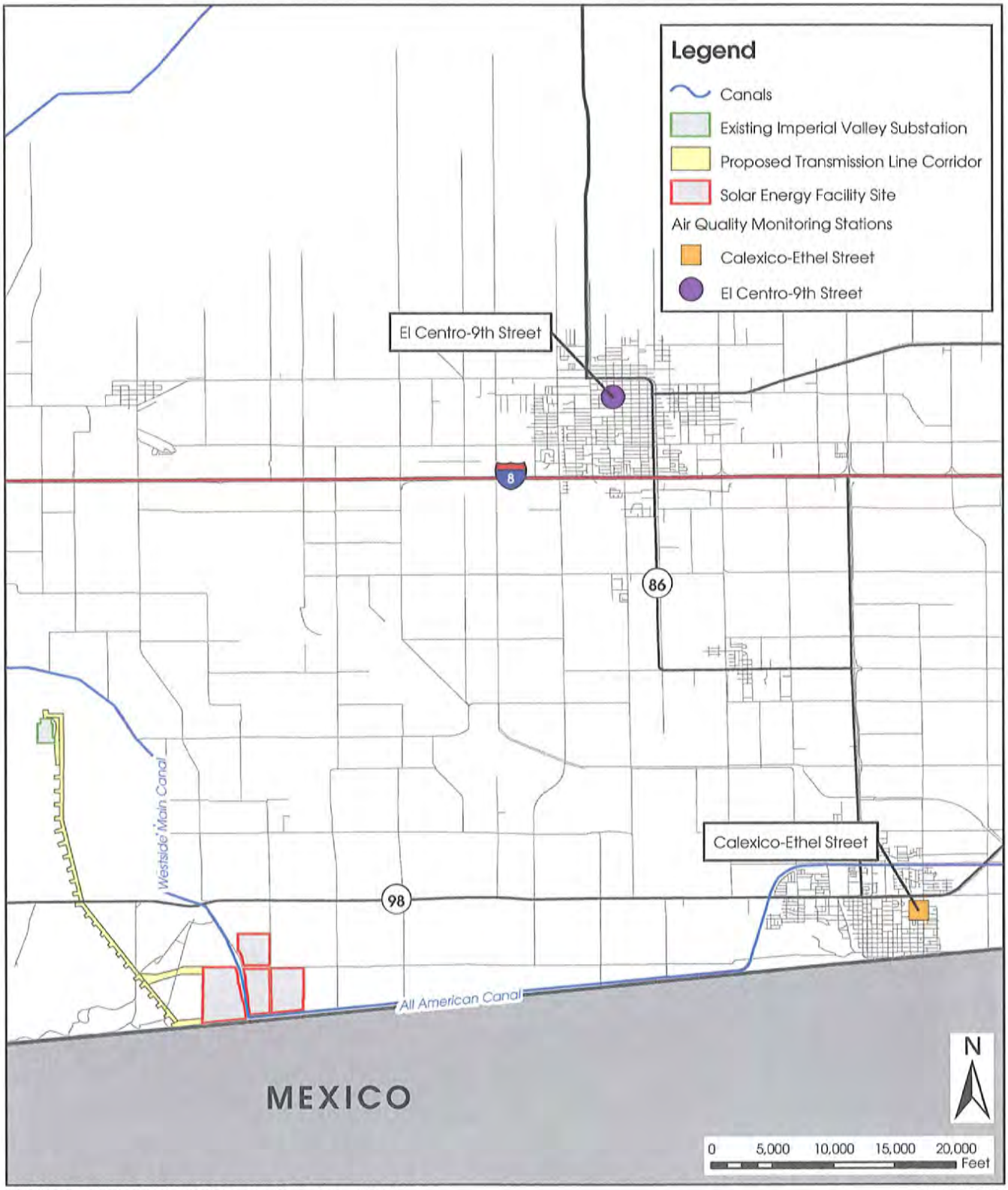

SOURCE: ESRI, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Air Quality Monitoring Station Locations

FIGURE 3.4-2

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3.5 Greenhouse Gas Emissions

3.5.1 Regulatory Framework

3.5.1.1 International and Federal

In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess "the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation." The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

The United States joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was entered on March 21, 1994. Under the convention, governments gather and share information on greenhouse gas emissions (GHGs), national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The Kyoto Protocol is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of greenhouse gases or engage in emissions trading. More than 160 countries, 55 percent of global emissions, are under the protocol. United States Vice President Al Gore symbolically signed the Protocol in 1998. However, in order for the Kyoto Protocol to be formally adopted, or ratified, it must be adopted by the U.S. Senate, which was not done by the Clinton administration. To date, the U.S. has not ratified the Kyoto Protocol.

In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal to return greenhouse gas emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in greenhouse gas emissions.

To date, the EPA has not regulated GHGs under the Clean Air Act; however, the U.S. Supreme Court in *Massachusetts v. EPA* (April 2, 2007) held that the EPA can, and should, consider regulating motor-vehicle GHG emissions. On June 30, 2009, the EPA granted California's request for a waiver to directly limit GHG tailpipe emissions for new motor vehicles beginning with the current model year. On December 7, 2009, the EPA determined that emissions of GHGs contribute to air pollution that "endangers public health and welfare" within the meaning of the Clean Air Act. This action finalizes the EPA's "endangerment determination" initially proposed on April 17, 2009, and now obligates the EPA to regulate GHG emissions from new motor vehicles. This finding sets the stage for the inevitable regulation under the Clean Air Act of

GHG emissions from a wide range of stationary and mobile sources unless Congress preempts such regulation by enacting climate change legislation.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHG under Section 202(a) of the Federal Clean Air Act (CAA):

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHG (CO_2, CH_4. N_2O, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHG from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the United States Department of Transportation National highway Safety Administration of September 15, 2009.

The Council on Environmental Quality's (CEQ) "Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions" proposes that if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO_2- equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 25,000 metric tons of CO_2- equivalent, CEQ encourages Federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ does not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs.

3.5.1.2 State

California Code of Regulations Title 24. Although not originally intended to reduce greenhouse gas emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions. CARB's greenhouse gas inventory is based on 2006 Title 24 standards.

State Standards Addressing Vehicular Emissions. California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the United States. In 2007, as part of the Energy and Security Act of 2007, CAFE standards were increased for new light-duty vehicles to 35 miles per gallon by 2020.

Executive Order S-01-07. Executive Order S-01-07 was enacted by the Governor on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. It is assumed that the effects of the LCFS would be a 10 percent reduction in GHG emissions from fuel use by 2020.

Executive Order S-3-05. Executive Order S-3-05, signed by Governor Schwartzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions by 2050. Executive Order S-3-05 also calls for the California EPA (CalEPA) to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California," and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, Governor Schwartzenegger signed California AB 32, the global warming bill, into law. AB 32 directs CARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and nonmonetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

CARB has estimated that the 1990 GHG emissions level was 427 MMT net CO_2e. In 2004, the emissions were estimated at 480 MMT net CO_2e. CARB estimates that a reduction of 173 MMT net CO_2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels. This amounts to a 15 percent reduction from today's levels, and a 30 percent reduction from projected business-as-usual levels in 2020.

In response to the requirements of AB 32, the CARB produced a list of 37 early actions for reducing GHG emissions in June 2007. The CARB expanded this list in October 2007 to 44 measures that have the potential to reduce GHG emissions by at least 42 million metric tons of CO_2 emissions by 2020, representing about 25% of the estimated reductions needed by 2020.

Senate Bill 97. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs OPR to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

On December 30, 2009, the Natural Resources Agency adopted amendments to the CEQA Guidelines in the California Code of Regulations. The amendments went into effect on March 18, 2010, and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. In addition, consideration of several qualitative factors may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. The Guidelines do not set or dictate specific thresholds of significance.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix G of the CEQA Guidelines.
- The Guidelines are clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- The Guidelines promote the advantages of analyzing GHG impacts on an institutional, programmatic level, and therefore approve tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential, pursuant to Appendix F of the CEQA Guidelines.

Senate Bill 375. Senate Bill 375 requires that regions within the State which have a metropolitan planning organization must adopt a sustainable communities strategy as part of their regional transportation plans. The strategy must be designed to achieve certain goals for the reduction of GHG emissions. The bill finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so, "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 provides that new CEQA provisions be enacted to encourage developers to submit applications and local governments to make land use decisions that will help the State achieve its goals under AB 32," and that "current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit serve and accessibility, the walkability of communities, and the use of economic incentives and disincentives."

Senate Bill 1078, Senate Bill 107, and Executive Order S-14-08. SB 1078 initially set a target of 20% of energy to be sold from renewable sources by the year 2017. The schedule for implementation of the RPS was accelerated in 2006 with the Governor's signing of SB 107, which accelerated the 20% RPS goal from 2017 to 2010. On November 17, 2008, the Governor signed Executive Order S-14-08, which requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020.

Executive Order S-21-09. Executive Order S-21-09 was enacted by the Governor on September 15, 2009. Executive Order S-21-09 requires that the CARB, under its AB 32 authority, adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target as established in Executive Order S-14-08. Under Executive Order S-21-09, the CARB will work with the Public Utilities Commission and California Energy Commission to encourage the creation and use of renewable energy sources, and will regulate all California utilities. The CARB will also consult with the Independent System Operator and other load balancing authorities on the impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of the Executive Order. The order requires the CARB to establish highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

3.5.1.3 Local

County of Imperial

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines to provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and GCC impacts. Formal CEQA thresholds for lead agencies must always be established through a public hearing process. Imperial County has not established formal quantitative or qualitative thresholds through a public rulemaking process, but CEQA permits the lead agency to establish a project-specific threshold of significance if backed by substantial evidence, until such time as a formal threshold is approved. These project-specific thresholds are provided in section 4.5 if this EIR/EA.

3.5.2 Affected Environment

Information in this section is summarized from the *Construction Greenhouse Gas/Global Warming Risk Assessment,* prepared by Investigative Science Engineers. (August 19, 2010). This document is provided as Appendix C2 on the attached CD of Technical Appendices found on the back cover of this EIR/EA.

3.5.2.1 Existing Site

The solar energy facility site consists of approximately 946.6 gross acres of privately owned, undeveloped agricultural land, in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles west of the City of Calexico.

The solar energy facility site is currently utilized for agricultural production, specifically alfalfa crops. The current activities of the site emit a small amount of GHG emissions, associated with the operation of mechanical farm equipment and vehicles.

The transmission line corridor site is currently desert land under the jurisdiction of the BLM. There are currently no man-made sources of GHGs on the transmission line corridor site. As such, there are no existing "point source" GHG emissions at the site.

The portions of the access road requiring a right-of-way from the BLM and that traverses private lands is currently a dirt access road. There are currently no man-made sources of GHGs on the access road. As such, there is no existing "point source" GHG emissions at the site.

3.5.2.2 Global Climate Change

GCC is a change in the average weather of the earth that is measured by temperature, wind patterns, precipitation, and storms over a long period of time. The baseline, against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed an unprecedented acceleration in the rate of warming during the past 150 years. GCC is a documented effect. Although the degree to which the change is caused by anthropogenic (man-made) sources is still under study, the increase in warming has coincided with the global industrial revolution, which has seen the widespread reduction of forests to accommodate urban centers, agriculture, and the use of fossil fuels – primarily the burning of coal, oil, and natural gas for energy. The majority of scientists agree that anthropogenic sources are a main, if not primary, contributor to the GCC warming.

3.5.2.3 Greenhouse Gases

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHG), in reference to the fact that greenhouses retain heat. Common GHGs include carbon dioxide (CO_2), water vapor (H_2O), methane (CH_4), nitrous oxide (N_2O), fluorinated gases, and ozone (O_3). Of these gases, CO_2

and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associates with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

The accumulation of GHG in the atmosphere regulates Earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler. However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. A detailed discussion of the primary GHGs of concern and the effects of GCC on the environment is provided in the Greenhouse Gas Study (Appendix C2 of this EIR/EA) and in Section 4.5 of this EIR/EA.

3.5.2.4 Sources and Global Warming Potentials of Greenhouse Gases

The State of California GHG Inventory performed by the California Air Resources Board (CARB), compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2004, and is summarized in Table 3.5-1. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the Intergovernmental Panel on Climate Change (IPCC). The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include: agriculture, commercial; electricity generation; forestry; industrial; residential; and transportation. To date, no GHG inventory has been prepared for Imperial County.

Table 3.5-1
State of California GHG Emissions by Sector

Sector	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2004 Emissions ($MMTCO_2e$)	Percent of Total 2004 Emissions
Agriculture	23.4	5%	27.9	6%
Commercial	14.4	3%	12.8	3%
Electricity Generation	110.6	26%	119.8	25%
Forestry (excluding sinks)	0.2	<1%	0.2	<1%
Industrial	103.0	24%	96.2	20%
Residential	29.7	7%	29.1	6%
Transportation	150.7	35%	182.4	38%
Forestry Sinks	(6.7)		(4.7)	

Source: CARB, 2010.

When accounting for GHGs, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT). GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. Table 3.5-2 presents the GWP and atmospheric lifetimes of common GHGs.

Table 3.5-2
Global Warming Potentials and Atmospheric Lifetimes of GHGs

GHG	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (Years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12±3
Nitrous Oxide	N_2O	310	120
Sulfur Hexafluoride	SF_6	23,900	3,200

Source: CARB, 2010.

Human-caused sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. Concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid (SRA, 2009).
Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

The sources of GHG emissions, GWP, and atmospheric lifetime of GHGs are all important variables to be considered in the process of calculating CO_2e for discretionary land use projects that require a climate change analysis.

3.5.2.5 Greenhouse Gases and Electricity Generation

The generation of electricity can produce GHG with the criteria air pollutants that have been traditionally regulated under the Federal and State CAAs. For fossil fuel-fired power plants, the GHG emissions include primarily CO_2, with much smaller amounts of N_2O and CH_4 (often from incomplete combustion of natural gas). For solar energy generation projects, the stationary source GHG emissions are much smaller than fossil fuel-fired power plants, but the associated maintenance vehicle emissions are the same. Other

sources of GHG emissions include SF_6 from high voltage equipment and HFCs and PFCs from refrigeration/chiller equipment. GHG emissions from the electricity sector are dominated by CO_2 emissions from carbon-based fuels; other sources of GHG emissions are small and also are more likely to be easily controlled or reused or recycled, but are nevertheless documented in this EIR/EA as some compounds have very high global warming potentials.

As California moves towards an increased reliance on renewable energy by implementing Renewable Portfolio Standard (RPS), non-renewable energy resources may be curtailed or displaced as shown in Table 3.5-3. These potential reductions in non-renewable energy, shown in Table 3.5-4, could be as much as 36,000 GWh. These assumptions are conservative in that the forecasted growth in electricity retail sales assumes that the impacts of planned increases in expenditures on (uncommitted) energy efficiency are already embodied in the current retail sales forecast (CEC, 2009). If, for example, forecasted retail sales in 2020 were lowered by 10,000 GWh due to the success of increased energy efficiency expenditures, non-renewable energy needs fall by an additional 8,000 to 6,700 GWh/year, depending on the RPS level, totaling as much as 45,000 GWh per year of reduced non-renewable energy, depending on the RPS assumed as shown in Table 3.5-4.

TABLE 3.5-3
Estimated Changes in Nonrenewable Energy Potentially Needed to Meet California Loads, 2008-2020

California Electricity Supply	Annual GWh
Statewide Retail Sales, 2008, estimated[1]	265,185
Statewide Retail Sales, 2020, forecast[1]	308,070
Growth in Retail Sales, 2008-2020	42,885
Growth in Net Energy for Load[2]	46,316

Source: BLM, 2010.

Notes: 1 = Not including 8% transmission and distribution losses.
2 = Based on 8% transmission and distribution losses, or 42,885 GWh x 1.08 = 46,316 GWh.
GWH = gigawatt hours

TABLE 3.5-4
Changes in Nonrenewable Energy, 2008-2020

California Renewable Electricity	GWh @ 20% RPS	GWh @ 33% RPS
Statewide Retail Sales, 2008, estimated[1]	61,614	101,663
Statewide Retail Sales, 2020, forecast[1]	29,174	29,174
Growth in Retail Sales, 2008-2020	32,440	72,489
Growth in Net Energy for Load[2]	13,876	(-36,173)

Source: BLM, 2010.

Notes: 1 = Renewable standards are calculated on retail sales and not on total generation, which accounts for 8% transmission and distribution losses.
2 = Based on net energy (including 8% transmission and distribution losses), not on retail sales.
GWH = gigawatt hours; RPS = Renewables Portfolio Standard.

A. The Role of Solar Projects in Retirements/Replacements

Solar power production projects are capable of providing renewable generation energy to replace resources that are or will likely be precluded from serving California loads. State policies, including GHG goals, are discouraging or prohibiting new contracts and new investments in high GHG-emitting facilities such as coal-fired generation, generation that relies on water for once-through cooling, and aging power plants. Some of the existing plants that are likely to require substantial capital investments to continue operation in light of these policies may be unlikely to undertake the investments and will retire or be replaced.

3.6 Geology/Soils and Mineral Resources

3.6.1 Regulatory Framework

3.6.1.1 Federal

Federal Land Policy and Management Act (FLPMA)

This Act provides the mandate to the BLM for the management of public lands and resources under its stewardship under the principles of multiple use, sustained yield, and maintenance of environmental quality.

3.6.1.2 State

Alquist-Priolo Earthquake Fault Zoning Act (1972)

The Alquist-Priolo Earthquake Fault Zoning prohibits the location of most structures for human occupancy across the traces of active faults. The State Geologist (Chief of the California Division of Mine and Geology) is required to identify "earthquake fault zones" along known active faults in California. Counties and cities must withhold development permits for human occupancy projects within these zones unless geologic studies demonstrate that there would be no problems.

California Building Code

California has adopted the 2007 statewide, mandatory codes based on the International Code Council's (ICC) Uniform codes. Among other elements, Chapter 16 of this code dictates the design and construction standards applicable to resist seismic shaking on structures.

Surface Mining and Reclamation Act

Part of the purpose of the act is to classify mineral resources in the State and to transmit the information to local governments, which regulate land use in each region of the State. Local governments are responsible for designating lands that contain regionally significant mineral resources in the local General Plans to assure resource conservation in areas of intensive competing land uses. The law has resulted in the preparation of Mineral Land Classification Maps delineating Mineral Resource Zones (MRZ) 1 through 4 for aggregate resources (sand, gravel, and stone).

3.6.1.3 Local

County of Imperial General Plan

The Seismic and Public Safety Element of the County of Imperial General Plan contains goals and policies that will minimize the risks associated with natural and human-made hazards including seismic/geological hazards, flood hazards, and Imperial Irrigation District Lifelines.

The County of Imperial General Plan contains specific policies related to geology, soils, and seismicity. Table 3.6-1 analyzes the consistency of the project with the applicable policies relating to seismic hazards and soil conditions in the County of Imperial General Plan.

TABLE 3.6-1
Project Consistency with Applicable General Plan Seismic and Public Safety Policies

General Plan Policies	Consistency with General Plan	Analysis
1) Implement codified ordinances and procedures which require the review and restriction of land use due to possible natural hazards.	Yes	Division 5 of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy which are located across the trace of an active fault are prohibited. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are demonstrated through a geotechnical analysis and report not to expose a person to undue hazard created by the construction. Since the project site is located in a seismically active area, all proposed structures are required to be designed in accordance with the California Building Code (CBC) for near source factors derived from a Design Basis Earthquake (DBE). In addition, appropriate mitigation measures have been incorporated into the EIR/EA to reduce risks associated with seismic hazards. A geotechnical report has been prepared by Landmark Consultants for the Proposed Action, which includes safety considerations in land use planning. The geotechnical report has been referenced in this environmental document, and the report's recommended measures to mitigate potential geologic or seismic hazards that may be associated with the Proposed Action have been incorporated into this EIR/EA.
2) Monitor, evaluate, and analyze existing seismic and geological data as it pertains to Imperial County to determine future regulations and programs.		
3) Implement the geologic hazards section of the County's Codified Ordinances pursuant to the requirements of the Alquist-Priolo Geologic Hazards Zone Act.		
4) Ensure that no structure for human occupancy, other than one-story wood frame structures, shall be permitted within fifty feet of an active fault trace as designated on maps compiled by the State Geologist under the Alquist-Priolo Geologic Hazards Zone Act.		
5) The County should require suppliers of all existing utilities which cross active faults to file with the County an operation plan describing the probable effects of failures at the fault and the various emergency facilities and procedures which exist to assure that failure does not threaten public safety.		
6) Ensure that proposed highway construction which falls within an Alquist-Priolo Act Special Studies Zone shall be reviewed to ensure that grade-separated interchange structures are not located on or near an active fault.		
7) Periodically update maps of existing faults, slide areas, and other geographically unstable areas in the unincorporated area of the County.		
8) Support the safety awareness efforts of the Office of Emergency Services of Imperial County and other agencies through public information and educational activities.		
9) Continue to implement the Alquist-Priolo requirements in designated special study zones in the Imperial County Ordinance.		

Source: County of Imperial General Plan, Seismic and Public Safety Element, 1993.

While this EIR/EA analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 151250, the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

The Conservation and Open Space Element of the County of Imperial General Plan contains a goal and objectives to preserve mineral resources in the County.

3.6.2 Affected Environment

Information contained in this section is summarized from the *Geotechnical Investigation Report, Imperial Solar Energy Center South* prepared by Landmark Consultants, Inc. (LCI) (May 2010). This document is provided on the attached CD of Technical Appendices as Appendix D of this EIR/EA.

3.6.2.1 Geology

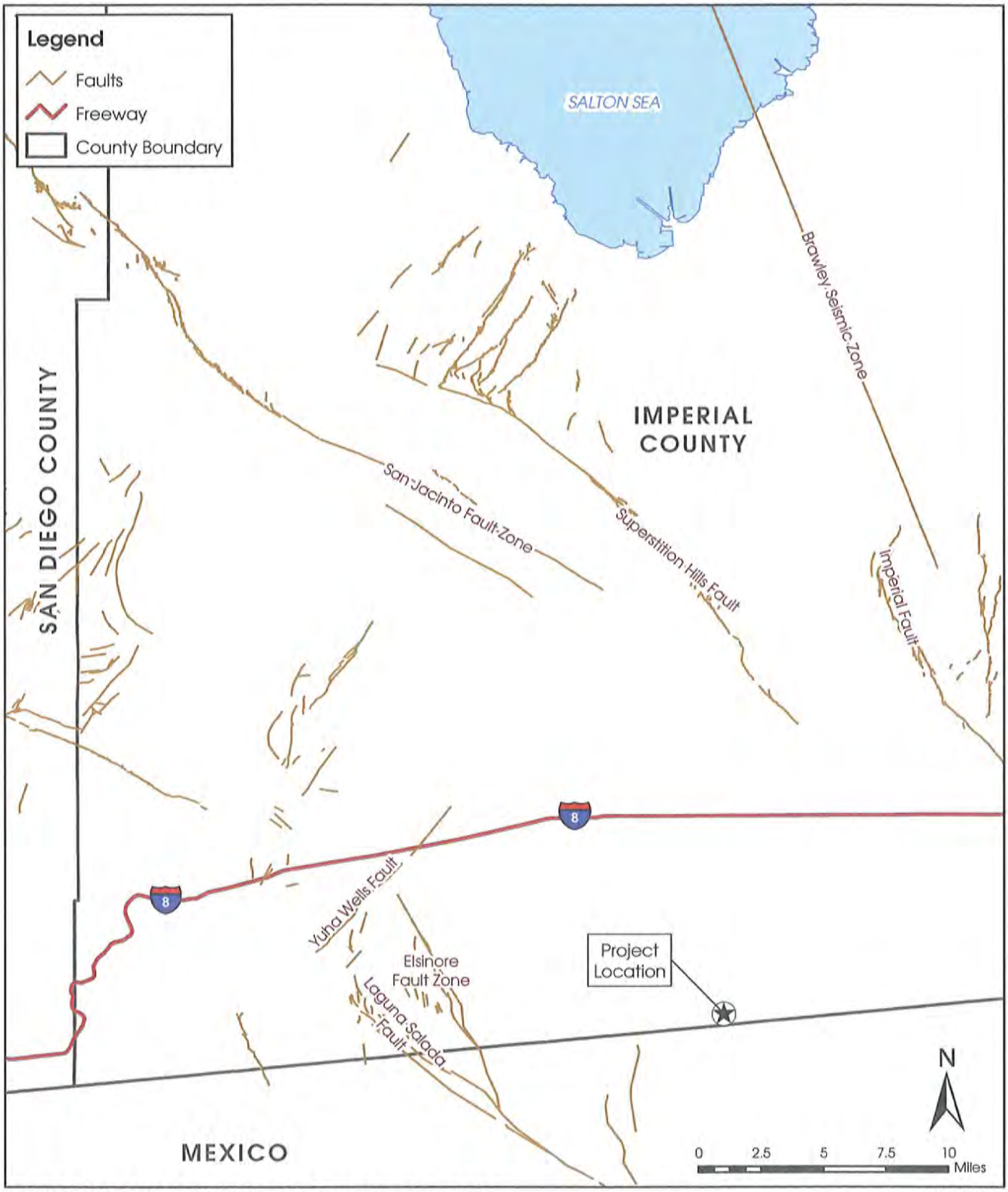
The project site (which includes the solar field, transmission corridor, and access road) is located in the Imperial Valley portion of the Salton Trough physiographic province of Southern California. The Salton Trough is a topographic and geologic structural depression resulting from large scale regional faulting. The trough represents the northward extension of the Gulf of California, containing both marine and non-marine sediments since the Miocene Epoch (approximately 5 to 24 million years ago). The project site and surrounding Imperial Valley is directly underlain by Late Pleistocene to Holocene Cahuilla Lake sediments, which consist of interbedded lenticular and tabular silt, sand, and clay. Older deposits consist of Miocene to Pleistocene non-marine and marine sediments deposited during intrusions of the Gulf of California. Basement rock underlies the lake deposits and older deposits at depths between 15,000 to 20,000 feet.

3.6.2.2 Seismicity

As is common in most of Southern California, the project site is located within a seismically active region. There are a number of faults considered active in Southern California. These include, but are not limited to the Imperial Valley faults and faults in the San Andreas Fault system, the San Jacinto Fault system, and the Elsinore Fault system. No known active fault or potentially active faults are known to exist on, or in the immediate vicinity of the project site. The closest mapped active faults in the region include: the Laguna Salada fault located approximately 8.5 miles to the southwest; the Superstition Hills fault located approximately 12 miles to the northeast; and, the Imperial fault located approximately 15 miles to the northeast. Figure 3.6-1 depicts the location of regional active faults. Potential hazards that occur from seismic activities include ground shaking, surface rupture, liquefaction, and landslides.

A. Ground Shaking

Due to the site's close proximity to active faults, including but not limited to the Imperial, Laguna Salada, and Superstition Hills Faults, one of the seismic hazards most likely to impact the project site is ground shaking resulting from an earthquake on a major active fault. The amount of ground shaking that an area may be subject to during an earthquake is related to the proximity of the area to the fault, the depth of focus, location of the epicenter and the size (magnitude) of the earthquake. Soil type also plays a role in the intensity of shaking. Bedrock, or other dense or consolidated materials are less prone to intense ground shaking than soils such as alluvium.



SOURCE: USGS, 2005; ESRI, 2010; BRG Consulting, Inc., 2010

8/10/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Regional Fault Map

FIGURE 3.6-1

F:\projects\1009 Imperial Solar South\1st Screencheck EIR_EA\Chapter 3\Section 6\Figure 3.6-1 Regional Fault Map.mxd

B. Surface Rupture

Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Rupture almost always follows pre-existing fault strands and may occur suddenly during an earthquake or slowly in the form of fault creep. Surface rupture represents a primary or direct potential hazard to structures built on an active fault zone. However, the project site does not lie within a State of California Alquist-Priolo Earthquake Fault Zone, which would be more prone to surface rupture.

C. Liquefaction

Liquefaction of soils can be caused by strong vibratory motion due to earthquakes in soils that have cohesionless characteristics. Liquefaction occurs primarily in saturated, loose, fine- to medium-grained sands, and most commonly occurs in areas where the groundwater table is less than 10 to 30 feet below the ground surface. When these sediments are shaken, a sudden increase in pore water pressure causes the soils to lose strength and behave as a liquid.

Four conditions are generally required for liquefaction to occur: 1) the soil must be saturated (relatively shallow groundwater); 2) the soil must be loosely packed (low to medium relative density); 3) the soil must be relatively cohesionless (not clayey); and, 4) groundshaking of sufficient intensity must occur to function as a trigger mechanism. All these conditions exist at some degree at the project site.

Groundwater

Groundwater was encountered approximately 6 to 18 feet during the time of exploration, but may rise with time to approximately 5 to 8 feet below ground surface. Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading. The primary constraint related to the presence of groundwater is the potential for liquefaction.

D. Landslides

Landsliding is caused by slopes becoming unstable and collapsing. Landsliding or slope instability may be caused by natural factors such as fractured or weak bedrock, heavy rainfall, erosion, earthquake activity, and fire, as well as by human alteration of topography and water content.

The hazard of landsliding is unlikely due to the regional planar topography of the project site. The project site is relatively flat with no steep topography. Furthermore, no ancient landslides are shown on geologic maps of the region and no indications of landslides were observed during the site investigation conducted by LCI.

3.6.2.3 Soils

A subsurface investigation was performed by LCI in 2010. This investigation included drilling 15 borings throughout the site and laboratory testing and analysis. Soil tests included plasticity index, particle size analysis, unit dry densities and moisture contents, direct shear, unconfined compression, and chemical analysis. Surface soils on the site consists of silty clay, silty sand, clayey silt, and clay.

A. Expansive Soils

Expansive soils are primarily comprised of clays, which increase in volume when water is absorbed and shrink when dry. Expansive soils are of concern because building foundations, concrete flatwork, and asphaltic concrete pavements may be prone to the potential swelling forces and reduction in soil strength. Based on the geotechnical investigation by LCI, the project site is underlain by clays of high to very high expansion potential. The onsite near surface soils vary in their potential for expansion. LCI reported Expansion Index (EI) values ranging from 100 (high) to 160 (very high).

3.6.2.4 Differential Settlement

Differential settlement refers to a situation in which the slab-on-ground foundation does not settle uniformly. When differential settlement occurs, some portions of the foundation settle more than other portions. Differential settlement in the project area can be due to seismically induced liquefaction.

3.6.2.5 Mineral Resources

The project site is currently under agricultural production and is not utilized for mineral resource production. No known mineral resources occur within the project site and the project site does not contain mapped mineral resources (USGS, 1983).

3.7 Cultural Resources

3.7.1 Regulatory Framework

3.7.1.1 Federal

National Environmental Policy Act (NEPA). NEPA establishes national policy for the protection and enhancement of the environment. Part of the function of the federal government in protecting the environment is to "preserve important historic, cultural, and natural aspects of our national heritage." Cultural resources need not be determined eligible for the National Register of Historic Places (NRHP) as in the National Historic Preservation Act (NHPA) of 1966 (as amended) to receive consideration under NEPA. NEPA is implemented by regulations of the Council on Environmental Quality, 40 Code of Federal Regulations (CFR) 1500-1508. NEPA provides for public participation in the consideration of cultural resources issues, among others, during agency decision-making.

National Historic Preservation Act (NHPA). Federal regulations (36 CFR Part 800.2) define historic properties as "any prehistoric or historic district, site, building, structure, or object included, or eligible for inclusion in, in the NRHP." Section 106 of the NHPA (Public Law 89-665; 80 Stat 915; USC 470, as amended) requires a federal agency with jurisdiction over a project to take into account the effect of the project on properties included in or eligible for the NRHP, and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The term "cultural resource" is used to denote a historic or prehistoric district, site, building, structure, or object, regardless of whether it is eligible for the NRHP.

Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code (USC) Section 3001, et seq. The stature defines "cultural items," "sacred objects," and "objects of cultural patrimony;" establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

3.7.1.2 State

State Office of Historic Preservation (OHP). The OHP was established in response to the National Historic Preservation Act (NHPA) of 1966 to administer cultural resource programs established by federal and state law.

Section 15064.5 of the State CEQA Guidelines also requires that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to museums, historical commissions, associations and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Health and Safety Code [HSC] Section 7050.5, PRC Sections 5097.94 et seq.).

AB 4239 established the Native American Heritage Commission (NAHC) as the primary government agency responsible for identifying and cataloging Native American cultural resources. The bill authorized the Commission to act in order to prevent damage to and insure Native American access to sacred sites and authorized the Commission to prepare an inventory of Native American sacred sites located on public lands

Public Resources Code 5097.97. No public agency and no private party using or occupying public property or operating on public property under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the *United States Constitution* and the *California Constitution*; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require.

Public Resources Code 5097.98 (b) and (e) require a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the NAHC-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reenter the remains elsewhere on the property in a location not subject to further disturbance.

California Health and Safety Code, Section 7050.5. This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner

3.7.1.3 Local

Imperial County General Plan. The *Imperial County General Plan* provides goals, objectives, and policies for the identification and protection of significant cultural resources. The Open Space Element of the *General Plan* includes goals, objectives, and policies for the protection of cultural resources and scientific sites that emphasize identification, documentation, and protection of cultural resources. While the Land Use section (Section 4.2) of this EIR/EA analyzes the project's consistency with the *General Plan* pursuant to State CEQA Guidelines Section 15125 (d), the Imperial County Board of Supervisors and Planning Commission ultimately determine the project's consistency with the *General Plan*.

3.7.2 Affected Environment

Information contained in this section is summarized from the *Cultural Resources Survey for the Imperial Valley South Solar Project* prepared by RECON Environmental, Inc. (August 2010).

3.7.2.1 Area of Potential Effect (APE)

The Proposed Action would construct a 947 acre solar site and 230-kV transmission line with approximately 11 acres of ground disturbance extending from the north side of the existing Imperial Valley Substation (Substation) south approximately 5 miles and then east for 1 mile to the Imperial Solar Energy Center South

solar energy facility site. The Proposed Action transmission line (IVS-1 and IVS-3) corridor (with 120-foot right-of-way [ROW]) would be located on Bureau of Land Management land and would run adjacent to an existing transmission line. The towers would be spaced approximately 900 to 1,150 feet apart and would be roughly in line with the existing lines' towers in an east-west direction.

In addition to the Proposed Action for the transmission corridor alignment (IVS-1 + IVS-3), CSOLAR is also proposing an alternative transmission corridor alignment. The transmission line under Alternative 1-Alternative Transmission Line Corridor would consist of IVS-1+IVS-4+IVS-5. The portion of the transmission line IVS-4 would run south from IVS-1 for 1 mile and then east for 0.5 mile (IVS-5) to connect to the solar energy facility. The Alternative 1-Alternative Transmission Line Corridor (IVS-1, IVS-4, and IVS-5) is also located on BLM land. The Alternative 2-Reduced Solar Energy Facility Site would include transmission corridor IVS-1 and IVS-3 and a reduced solar site of approximately 476 acres. Alternative 3 is the No Action/No Project Alternative.

Wide survey areas were defined along each potential transmission line routes in order to provide a detailed understanding of potential effects. In total 1,353 acres were surveyed. For the purposes of analysis, the APE associated with the project components (solar energy facility site, access roads, and tower locations) was determined to be coterminus with the survey area.

The 1,353-acre survey area included all of the project components and alternatives which comprise the APE. These components are listed as follows:

- R-2 South Solar Energy Facility Site (928 acres)
- IVS-6 South Solar Energy Facility Corner Parcel (19 acres)
- IVS-1 Transmission Line 300-foot corridor (242 acres)
- IVS-3 Transmission Line Extension 500-foot corridor (68 acres)
- IVS-4 Alternative Transmission Line 300-foot corridor (34 acres)
- IVS-5 Alternative Transmission Line Extension 500-foot corridor (29 acres)
- IVS-7 Substation Buffer (33 acres)

3.7.2.2 Cultural Setting

The project area is in the West Mesa of the Yuha Desert. The Yuha Desert is an area of extremely low precipitation and high temperatures. Summer highs often reach 120 degrees Fahrenheit, while winters are mild with little or no freezing at lower elevations (Jaeger 1965:39). The relic shoreline or 40-foot contour of the ancient Lake Cahuilla runs south and west of the project footprint. Lake Cahuilla was a freshwater lake that was filled by the Colorado River between 25,000 and 45,000 years ago during the late Pleistocene and then again during the late Holocene. There were numerous Lake Cahuilla filling and desiccation cycles during the late Holocene; however, the number of lakestands and their dates remain problematic (Schaefer 1994a; Waters 1980, 1983; Wilke 1978). These lakestands were significant water sources for

prehistoric peoples. The Lake Cahuilla shoreline has been associated with extensive prehistoric use and occupation.

The prehistory of Imperial County, California, may be divided into four major temporal periods: Pre-projectile, Paleoamerican, Archaic, and Late Prehistoric. These time periods have regional expression through various regional archaeological complexes or archaeological cultures.

Pre-projectile Period (prior to 12,000 years Before Present [BP]). A Pre-projectile Period is posited by some researchers for the greater southwestern United States. This time period is represented by the Malpais Complex. The term Malpais was first coined by Malcolm Rogers to refer to very heavily patinated and weathered artifacts that he reasoned were quite old. Rogers later dropped the term and reclassified these materials as San Dieguito I (Rogers 1939). The term Malpais was later resurrected by Julian Hayden to refer to assemblages of very heavily varnished choppers, scrapers, and other core-based tools typically found on old desert pavement areas. Malpais materials are posited to predate the San Dieguito materials, but obtaining radiocarbon or other absolute dates for these materials has proven elusive (e.g., Begole 1981; Childers 1980; Davis et al. 1980; Hayden 1976). Malpais sites are characterized by "bare circles" (i.e., cleared circles or house remains) that have been cleared from volcanic landscapes. Malpais sites are located above drainages on flat, rolling terrain and also a short distance up the side of a slope. Trails are a common feature at these sites (California State Parks 2005). Other researchers are quite skeptical of this posited time period (e.g., Schaefer 1994a). The Yuha Burial Site and the Yuha Pinto Wash Site, both located in the Yuha Desert south of the project, are two controversially dated sites (Moratto 1984).

Paleoamerican Period (12,000 BP to about 8,000 BP). The earliest part of the Paleoamerican Period in the region is represented by the Fluted Point Tradition. Fluted points have been well documented and dated for the Rocky Mountain and Great Plains areas (Haury 1975; Hester 1972; Jennings 1978; McGuire and Schiffer 1982). In these regions, they are often associated with big game kill sites and are interpreted to reflect a Big Game Hunting Tradition. In the Great Basin and California, however, their dating is more problematic. They are typically found along the shorelines of Pleistocene playas, along fossil streams, and in passes connecting such places (Fredrickson 1973; Riddell and Olsen 1969). Some researchers suggest that this reflects a lacustrine or riparian adaptation ancestral to the Western Pluvial Lakes Tradition or San Dieguito–Lake Mojave Complex that developed after about 12,000 BP (Moratto 1984).

The San Dieguito–Lake Mojave Complex is thought to have existed approximately 10,000 to 7,000 years ago during a time of greater rainfall than the present in southeastern California (Warren and Crabtree 1986). The assemblage consists of heavy percussion, core, and flake-based tools: domed and keeled choppers, planes, and scrapers. One also finds light-percussion flaked spokeshaves, flaked-stone crescentics, and leaf-shaped projectile points. In the Mojave Desert, one also finds the distinctive Lake Mojave and Silver Lake stemmed projectile points. Fluted points are also occasionally found on San Dieguito–Lake Mojave surface sites (Moratto 1984). Milling equipment is apparently rare or absent (Warren and Crabtree 1986:184). Subsistence is generally thought to have been focused on highly ranked resources such as large mammals. This subsistence strategy may have encouraged a pattern of relatively high residential mobility. Some cleared circles, trails, and geoglyphs in the Colorado Desert have been

tentatively included in the San Dieguito–Lake Mojave Complex. Temporal placement of these sites is based on degree of embeddedness in desert pavements and patination, a dating method that has not been proven reliable (Hayden 1976; McGuire and Schiffer 1982; Rogers 1939).

Archaic Period (7,000 to 1,500 BP). The early Archaic Period is represented by the Pinto Complex (7,000 to 4,000 BP) in the Colorado Desert. There is an apparent shift to a more generalized economy and a gradually increased emphasis on the exploitation of plant resources. The ground stone artifacts associated with this complex are typically thin slabs with smooth, highly polished surfaces, not the basin metates and manos typical of later times. Rogers (1939: 52-53) argued that the thin, polished "slab metates" were not milling stones, but rather were used to process fibrous leaves or skins (Susia 1964; Wallace 1962; Warren 1984). Projectile points consist of the distinctive Pinto Series atlatl points made by hard hammer percussion technique. The assemblage also includes scrapers, knives, scraper-planes, and choppers. The mixed core-based tool assemblage of the Pinto Complex may indicate a range of adaptations to a more diversified set of plant and animal resources brought about by a generalized desiccating trend in the West, punctuated by occasional, more mesic times. The early component at the Indian Hill Rockshelter in Anza–Borrego Desert State Park, approximately 22 miles west of the project area, has been dated to this period. In general, archaeological sites dating to this period are rare in the Colorado Desert (Cleland et al. 2003).

According to Schaefer (1994a), Indian Hill Rockshelter (CA-SDI-2537), located in the eastern foothills of the Jacumba Mountains, is the only well-documented site in the Colorado Desert of this period. A radiocarbon date of 4070±100 years BP was obtained from a burial. This site contained rock-lined features, Elko points, core tools, hammerstones, manos reused as cooking stones and in hearths, brown ware and buff ware ceramics, ceramic pipes, and shell beads (MacDonald 1992). The ceramics were found in the upper levels of the deposit and date to a later site component. MacDonald (1992) suggests that Indian Hill Rockshelter was a multi-component site used as a food storage facility with numerous rock-lined features, occupied during the winter and spring.

The following the Pinto Complex is the Gypsum Complex, or Amargosa Complex (4000 to 1500 BP). This complex is characterized by the presence of fine, pressure-flaked Elko and Humboldt series and Gypsum-type projectile points. The assemblage also contains leaf-shaped points; rectangular-based knives; flake scrapers; T-shaped drills; and occasional large scraper-planes, choppers, and hammerstones. Manos and basin metates become relatively common, and the mortar and pestle were introduced late in the complex (Warren 1984:416). The fluorescence of tool types and the refinement of milling equipment suggest a more generalized and effective adaptation to desert conditions in the Greater Southwest (Warren and Crabtree 1986).

Late Prehistoric Period (1,500 to 450 BP). The Late Prehistoric Period, also known as the Patayan Complex, begins by approximately 1500 BP. At this time, the archeological record in the Colorado Desert shifts to the Patayan Complex (e.g., Schaefer 1994a). The Patayan Complex, first termed by Colton (1945), is characterized by dramatic cultural change and an expanded population in the Salton Trough. Paddle and anvil pottery was introduced, probably from Mexico by way of the Hohokam Complex of the middle Gila River area (Schroeder 1975, 1979; Rogers 1945). Lower Colorado Buff Ware, as described in the Patayan

Complex, appears by about 1250 BP in the Colorado Desert (Waters 1982; Hildebrand 2003). Tizon Brownware, found in San Diego County, northern Baja California, and the western Salton Basin, occurs slightly later (Griset 1996).

The Patayan Complex is divided into three phases: Patayan I, II, and III. The terms Yuman I, II, and III—as termed by M. Rogers (1945)—coincide with the three Patayan periods with slight differences in terms of ceramic types and are defined by changes in ceramic types and the filling and desiccation of Lake Cahuilla (Waters 1982; Weide 1976). Lower Colorado Buff Ware types for each Patayan Period are listed in Section 3.2.

The settlement system of Patayan I (1250–950 BP) is characterized by small mobile groups living in dispersed seasonal settlements along the Colorado River. Hunting and gathering was the subsistence strategy used by these mobile groups. Yuman I people also have been described as having resided in the delta of the Colorado River from the 9th century until approximately 900 BP (Rogers 1945). A subsistence shift to floodplain horticulture occurred along the Colorado River and perhaps along the Alamo River and New River during the Patayan II Period (950-450 BP) (Baksh 1994; Forde 1931). Like elsewhere in the Southwest, principal crops were maize, beans, and squash, but mesquite was actually more important to the diet. Fish from the Colorado River was the main source of protein (Castetter and Bell 1951). The shift to Patayan II coincides with the various filling–recession episodes of Lake Cahuilla and the lacustrine environment created by the lake. Yuman II also spanned from 900 to 450 BP and is characterized with an expansion into large settlement areas because of filling of Lake Cahuilla (Rogers 1945). During Patayan III (450–20 BP), there was a population shift because of the final desiccation of Lake Cahuilla (Rogers 1945; Waters 1982). Rogers (1945) also mentioned this population shift during his discussion of the Yuman III Period.

Smaller projectile points signifying the advent of the bow and arrow appear about 1050 BP in the Colorado Desert. Cottonwood Series points predate the Desert Side-notched Series (Justice 2002:368). Also during this period, burial practices shifted from inhumations to cremations. Other culture traits generally associated with this period include increasingly elaborate kinship systems, rock art including the famous geoglyphs or ground figures found along the Colorado River, and expanded trading networks as evidenced by the presence of shell from the Pacific Ocean and Gulf of California in Colorado Desert sites (Davis 1961; McGuire and Schiffer 1982; Warren 1984; Schaefer 1994a). Numerous trails that appear to date to this period throughout the Colorado Desert suggest the growing importance of long- and short-distance travel for trading expeditions, religious activities, visiting, and warfare.

The greatly increased number of Late Prehistoric Period archaeological sites suggests an expansion of population. The settlement pattern is characterized by small mobile groups living in seasonal settlements along the Colorado River floodplain. These locations were influenced by the filling and desiccation of Lake Cahuilla at least four times during this period (Schaefer 1994a).

3.7.2.3 Ethnohistory

The project survey area was utilized prehistorically by a variety of Native American groups, including the Kumeyaay (the Kamia is a subset of this group), the Cocopah, and the Quechan. These three groups

speak the language of the Yuman family of the Hokan language stock (Kroeber 1920). Short descriptions of their individual ethnographic context are outlined below.

Kumeyaay. At the time of the Spanish invasion, the Kumeyaay (also known as Kamia, Ipai, Tipai, and Diegueño) occupied the southern two-thirds of San Diego County. The Kumeyaay lived in semi-sedentary, politically autonomous villages or *rancherias*. A settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places (Cline 1984). The Kumeyaay economic system consisted of hunting and gathering, with a focus on small game, acorns, grass seeds, and other plant resources. The most basic social and economic unit was the patrilocal extended family. A wide range of tools was made of both locally available and imported stone, including scrapers, choppers, flake-based cutting tools, and biface knives. The Kumeyaay made pottery and fine baskets of either coiled or twined construction. Trade was an important feature of Kumeyaay subsistence. Coastal groups traded salt, dried seafood, dried greens, and abalone shells to inland and desert groups for products such as acorns, agave, mesquite beans, and gourds (Almstedt 1982:10; Cuero 1970:33; Luomala 1978:602).

Kamia. The Kamia traditional territory included the southern Imperial Valley from the latitude of the southern half of the Salton Sea to well below what is the US-Mexico international border (Forbes 1965; Luomala 1978:593). Their main settlements were along the New and Alamo rivers. Subsistence among the Kamia consisted of hunting and gathering, and floodplain horticulture. In normal years, the Colorado River would overflow its banks in the spring and early summer and fill rivers such as the New and Alamo (Gifford 1931). When the floodwater receded, the Kamia would plant in the mud. A dam was maintained at Xatopet on the east/west portion of the Alamo River to control water flow and allow farming in years when water flow was insufficient. The Kamia's major food staple was mesquite and screwbean (Gifford 1931:23). Hunting contributed to the diet in a minor way in terms of overall caloric intake, but provided valuable protein, and skin and bone for clothing, blankets, and tools. Small game, primarily rabbits, was most frequently taken, using bow and arrow or rabbit stick (*macana*). Sometimes fires were set along sloughs to drive rabbits out. Individuals with bow and arrow also hunted deer and mountain sheep. Fish were also taken in sloughs with bow and arrow, by hand, hooks, basketry scoops, and seine nets.

Cocopah. The Cocopah lived on the west side of the Colorado River delta from the tidewater area, north to a little above the latitude of Volcano Lake or Cerro Prieta, several miles south of the US-Mexico border (Castetter and Bell 1951:52; Gifford 1933:261; Kroeber 1920). Cocopah subsistence was similar to other river Yuman people, although their location in the Colorado River delta area had a somewhat different environment from that of the upstream tribes (Castetter and Bell 1951; Sykes 1937). The Colorado River frequently changed course within the general floodplain throughout the area below the Grand Canyon. The river formed very active meanders in the delta region, requiring settlement and field movement among the Cocopah and other delta peoples. Mesquite and screwbean grew in profusion and formed a dietary staple of the Cocopah. Other important wild food sources of the delta region were "wild rice or wild wheat," and *quelite* or amaranth. The Cocopah planted a variety of maize, pumpkins, tepary beans, cowpeas, muskmelons, watermelons, and *heshmicha* (grain resembling wheat), and sugar cane (Gifford

1933). Hunting was relatively unimportant and was confined primarily to the hills and mountains. Fish was the most important animal food among Lower Colorado River peoples.

Quechan. The Quechan (Kwatsan) were formerly called the Yuma Indians. Their territory was centered at the confluence of the Gila and Colorado Rivers (present-day Yuma, Arizona), but extended north on the Colorado about 60 miles, and 30 miles up the Gila (Miguel n.d., cited in Bee 1982:37). According to Quechan tradition, the northern boundary was in the vicinity of Blythe, California; the southern boundary reached into Baja California and Sonora, Mexico. The Quechan had a relatively large population and a stable horticultural and gathering economy. Throughout winter and spring, the Quechan lived in large, seasonal settlements or *rancherias* located on terraces above the Colorado River floodplain. When the floodwaters of spring receded, the Quechan left their winter villages on the river terraces and dispersed into camps near their 2- to 3-acre horticultural plots distributed along the river floodplain. Planting was done in the mud as the river receded. Major crops included maize, squash, pumpkin, watermelon, and wheat (Castetter and Bell 1951). Quechan villages were actually a collection of houses, or *rancherias*, dispersed along the Colorado and Gila rivers. Households consisted of composite families that lived together and moved, more or less as a unit, from place to place within a constantly changing floodplain environment.

3.7.2.4 Historic Period

The Spanish Period (1769–1821) in the Colorado Desert begins with the Alarcon exploration up the Colorado River in 1540 and the land expedition to the Colorado River by Melchior Diaz in the same year. Cabrillo claimed the coast of Alta California for Spain in 1542. It was not until 1769 that a permanent settlement was founded. In that year, the San Diego Presidio and the San Diego Mission—in what is now Old Town—were established (Rolle 1998). Native American culture in the coastal strip of California rapidly deteriorated despite repeated attempts to revolt against the Spanish invaders (Carrico 1987; Cook 1976). One of the hallmarks of the Spanish colonial scheme was the rancho system, in which large land grants were made to meritorious or well-connected individuals to encourage settlement (Rolle 1998).

The first Spanish explorer to actually enter the Imperial Valley was Pedro Fages, who rode along the northwestern edge of the Colorado Desert while looking for deserters from San Diego in 1772. He apparently entered the desert on an Indian trail he discovered, which led through Oriflamme Canyon to Carrizo Creek and the desert floor (Bolton 1931:214; Lawton 1976:47; Pourade 1961;53-54). Fages was followed by Juan Bautista de Anza. Both of the 1774 and 1775 Anza expeditions (guided by Padre Francisco Garcés) set out from Tubac, Sonora, to Yuma; south into Mexico; then west to Imperial Valley; and stopped at what he called Santa Rosa de las Lajas (Yuha Well). From there the expedition continued north through the Yuha Desert and went what is now the community of Borrego Springs and north to San Gabriel (Forbes 1965). The route was abandoned in 1781 after the Quechan revolted against two Spanish settlements near Yuma (Forbes 1965). Both Fages and Anza passed west of the project survey area.

During the Mexican Period (1822–1848), the mission system was secularized by the Mexican government and these lands allowed for the dramatic expansion of the rancho system. The southern California economy became increasingly based on cattle ranching. General Stephen Kearney, guided by Kit Carson, and his troops crossed the Colorado Desert east of the survey area in 1846 following the Native American

trails. The famous Mormon Battalion, under the command of Philip St. George Cook, followed a similar route in 1847. The Mexican Period ended, when Mexico signed the Treaty of Guadalupe Hidalgo on February 2, 1848, concluding the Mexican–American War (1846–1848; Rolle 1998). California became a state in 1850 (Rolle 1998).

A great influx of Americans and Europeans followed the discovery of gold in northern California in 1848. The gold seekers and homesteaders traveled through the Colorado Desert using the same route as Kearny and the Mormon Battalion, then known as the Southern Emigrant Trail in the early 1900s. In 1853 the route was used by the Birch Overland Mail and later in 1858 by the Butterfield Southern Overland Mail Line. After 1861, when the mail route stopped service, the route was used mostly for cattle drives from Mason and Vallecitos valleys to Carrizo Valley and the Fish Creek area in the desert (Cook and Fulmer 1980). In 1890, prospectors in search of minerals in the Anza–Borrego Desert began using the route (Cook and Fulmer 1980). Today this old Indian and pioneer route is called County Route S2, or the Great Southern Overland Stage Route of 1849, which connects Ocotillo at Interstate 8 with Warner Springs to the north.

The segment of the Southern Pacific Railroad that runs northeast of the project area was constructed in the 1870s (Pourade 1964). Around the turn of the century, the Imperial Valley experienced considerable population growth after the construction of irrigation projects, and agriculture became a prime focus of economic activity. By the turn of the 20th Century Dr. O. M. Wozencraft's vision of a vast irrigated agricultural land in Imperial County was coming to fruition with the first delivery of Colorado River water released through a newly constructed canal system in 1901 (Dowd 1956:7, 21-22). Part of that early canal system included what is now known as the West Side Main (CA-IMP-7834), but in the early 1900s went by the name of Encina Canal. This canal was constructed in Baja California at Sharp's Heading, crossed the New RiverDat that time a small channel—via a flume, then turned west and north, crossing the international border at a point approximately 10 miles west of Calexico (Dowd 1956:23).

Very early into the development of the canal system it was recognized that an all American system needed to be built in order to maintain control of the water supply entering the network. Ironically perhaps, the illegally built head gate on the Colorado River in Mexican territory failed to hold back the record seasonal flow of 1905-1907, resulting in the destruction of thousands of feet of flume, miles of canals, and thousands of acres of land. Improvements to the system followed and the West Side Main Canal was enlarged and improved, and by 1940 was tied in to the All-American Canal, just in time for it to continue service to the western agricultural fields when much of the network was shuttered following that year's earthquake (Dowd 1956:43, 45, 103-104). The construction of the All-American Canal to transport water from the Colorado River to Imperial Valley between 1934 and 1940 transformed agricultural development and settlement of the Imperial and Coachella valleys. The areas served by the canal have become one of the richest and most important agricultural areas in the U.S. since the completion of the canal in 1938 (Queen 1999).

3.7.2.5 Records Search

Prior to the survey, a record search was requested from the South Coast Information Center (SCIC) at San Diego State University. The information obtained from the record search was used to determine if previous

surveys had been conducted in the area of potential effect, what resources might be expected, and whether any cultural resources have been recorded within the project limits. According to the results from SCIC, several prehistoric sites including temporary camps, lithic scatters, ceramic and lithic scatters, trail segments, hearths, sleeping circles, and cremations were identified. Historic sites were identified which include trash scatters, the Westside Main Canal, and the All American Canal (see Table 3.7-1). 29 prehistoric and 1 historic sites and 8 isolates are located within the proposed APE.

Table 3.7-1
Previously Recorded Sites Within the APE

P-Number	Trinomial	Quad	Site Type	Features	Artifacts	Date	Location
13-001402	IMP-1402	Mount Signal	Isolate		Ceramics	1976	IVS-1
13-001403	IMP-1403	Mount Signal	Isolate		Ceramics	1976	IVS-1
13-003971	IMP-3971	Mount Signal	Ceramic and lithic scatter		Ceramics, lithics, groundstone	2001	IVS-1
13-003999	IMP-3999	Mount Signal	Temporary camp	Hearths	Ceramics, lithics, groundstone,FAR	1996	IVS-1
13-004959	IMP-4959	Mount Signal	Ceramic and lithic scatter		Ceramics, lithics, historic gun	2001	IVS-1
13-004962	IMP-4962	Mount Signal	Temporary camp	Cremation	Ceramics, lithics	1983	IVS-1
13-004963	IMP-4963	Mount Signal	Ceramic and lithic scatter		Ceramics, lithics	2001	IVS-1
13-004964	IMP-4964	Mount Signal	Lithic scatter		Lithics	2001	IVS-1
13-005592	IMP-5592	Mount Signal	Isolate		Flake	1983	IVS-1
13-005593	IMP-5593	Mount Signal	Isolate		Flake, scraper	1983	IVS-1
13-005594	IMP-5594	Mount Signal	Ceramic scatter		Ceramics, flake	1983	IVS-1
13-005595	IMP-5595	Mount Signal	Isolate		Flake	1983	IVS-1
13-005596	IMP-5596	Mount Signal	Isolate		Scraper, ceramic	1983	IVS-1
13-006668	IMP-6668	Mount Signal	Ceramic scatter		Ceramic	2001	IVS-1
13-008406	IMP-7874	Mount Signal	Ceramic and lithic scatter		Ceramics, lithics	2001	IVS-1
13-008407	IMP-7875	Mount Signal	Ceramic and lithic scatter		Ceramics, lithics, shell pendant	2001	IVS-1
13-008429	IMP-7891	Mount Signal	Lithic scatter		Lithics	2001	IVS-1
13-008432		Mount Signal	Isolate		Flake	2001	IVS-1

Table 3.7-1
Previously Recorded Sites Within the APE (cont'd.)

P-Number	Trinomial	Quad	Site Type	Features	Artifacts	Date	Location
13-008437		Mount Signal	Isolate		Milling slab	2001	IVS-1
13-008444		Mount Signal	Isolate		Ceramics	2001	IVS-1
13-008445		Mount Signal	Isolate		Ceramic	2001	IVS-1
13-008451		Mount Signal	Isolate		Ceramic	2001	IVS-1
13-008455		Mount Signal	Isolate		Ceramics	2001	IVS-1
13-008459		Mount Signal	Isolate		Ceramics	2001	IVS-1
13-008460		Mount Signal	Isolate		Flake	2001	IVS-1
13-000115	IMP-115	Mount Signal	Temporary Camp	House floors, hearths	Ceramics, lithic	2001 (1980)	IVS-1, IVS-3, IVS-4
13-005588	IMP-5588	Mount Signal	Isolate		Flake	1983	IVS-1/IVS-7
13-004961	IMP-4961	Mount Signal	Ceramic and lithic scatter	Possible dwelling	Ceramics, lithics, groundstone	2001	IVS-2
13-004482	IMP-4482	Mount Signal	Isolate		Ceramic	1981	IVS-3
13-004483	IMP-4483	Mount Signal	Isolate		Ceramic	1981	IVS-3
13-004484	IMP-4484	Mount Signal	Isolate		Button	1981	IVS-3
13-004485/13-004495	IMP-4485/4495	Mount Signal	Temporary camp	Possible cremations	Ceramics, lithics, groundstone, bone	1981	IVS-3/IVS-4
13-004493	IMP-4493	Mount Signal	Isolate		Ceramics	1981	IVS-4
13-004494	IMP-4494	Mount Signal	Isolate		Flake	1981	IVS-4
13-004479	IMP-4479	Mount Signal	Ceramic scatter		Ceramics	2001	IVS-5
13-005585	IMP-5585	Mount Signal	Isolate		Flake	1983	IVS-7
13-005586	IMP-5586	Mount Signal	Isolate		Flake	1983	IVS-7
13-005587	IMP-5587	Mount Signal	Isolate		Flake	1983	IVS-7

Source: RECON, 2010.

3.7.2.6 Field Inventory Results

Fieldwork proceeded under BLM Cultural Resource Use Permit CA-08-16 and a fieldwork authorization CA-670-10-109FA02 from the El Centro Field Office. RECON archaeologists conducted the pedestrian survey of the 947 acres for a solar energy facility site (including IVS-6 and R-2) and 406 acres of transmission corridors

(including IVS-7) as the APE between April 14 and June 11, 2010, using 15-m transects. The field team navigated the project survey area by means of a sub-meter global positioning system (GPS) unit. RECON downloaded a georeferenced map into a field GPS unit to facilitate route finding and resource recording. RECON maintains a GIS database with ESRI's ArcView, ArcInfo, and ArcGIS programs to manage, analyze, and display this information. The field GPS unit consisted of a handheld Trimble GEO-XH with linked beacon receiver. These instruments provided the field team with sub-meter accuracy and real-time position correction and recording capability. Aerial photographs of the project survey area and compasses were also used.

The project survey area was inspected for evidence of archaeological materials such as flaked and ground stone tools or fragments, ceramics, milling features, and human remains. When archaeological materials were found, the transect intervals were reduced from 15 m to 3-5 m. The locations of the features and the artifacts within new site areas were recorded using a sub-meter GPS. Upon the discovery of burned bone of unknown origin, the BLM archaeologist for the project was notified via e-mail and a phone call within 24 hours of the discovery that potential human remains had been found. Features, excluding human cremations, were photographed. A site was defined as those artifacts or features within 30 m of each other. A 10-m buffer around these artifacts designated a site boundary. Sketch maps were made by means of GPS data and aerial photographs of the site location. General photographs of the site area and close-up shots of diagnostic items or other descriptive scenes were taken. Natural features, such as shrubs and drainages, and modern features, such as roads, were depicted on maps as appropriate. No artifacts were collected during the survey. California Department of Parks and Recreation (DPR) site forms, update forms, and maps were will be submitted to the SCIC.

The 1,353-acre project survey area was subjected to a Class III survey in order to determine if there are new cultural resources present, document where these resources are and what they consist of, and attempt to determine the archaeological sites' time of occupation and function within the prehistoric settlement and economic systems. RECON archaeologists conducted the pedestrian survey of the 947 acres for a solar energy facility site and 406 acres of transmission corridors as the area of potential effect (APE) between April 14 and June 11, 2010, using 15-meter transects. The project survey area was inspected for evidence of archaeological materials such as flaked and ground stone tools or fragments, ceramics, milling features, and human remains. Upon the discovery of burned bone of unknown origin, the BLM archaeologist for the project was notified via e-mail and a phone call within 24 hours of the discovery that potential human remains had been found. A site was defined as those artifacts or features within 30 meters of each other. A 10-meter buffer around these artifacts designated a site boundary. No artifacts were collected during the survey. The results have been organized according the five different project areas. Of the 30 previously recorded sites and eight isolates, nine previously recorded sites were relocated and 11 new sites and 84 new isolates were identified with the APE. Table 3.7-2 below provides a list of the nine previously recorded and 11 new sites. Detailed descriptions of those sites are discussed below.

A. Previously Recorded Sites

1. Proposed Action

The following provides a description of the previously recorded sites associated with construction and operation of the Proposed Action. The Proposed Action consists of the 947-acre solar site (R-2 and IVS-6) in addition to the Transmission Lines IVS-1 and IVS-3, which connect with the northwestern portion of the solar energy facility site (R-2) (see Figure 3.7-1). To summarize, the Proposed Action consists of the following components (totaling 1,257 acres):

- R-2 and IVS-6 South Solar Energy Facility Site (947 acres)
- IVS-1 Transmission Line 300-foot corridor (242 acres)
- IVS-3 Transmission Line Extension 500-foot corridor (68 acres)

IMP-3999

CA-IMP-3999 was first recorded in 1981 as a temporary camp with 100 or more ceramic sherds, 20 or more flakes, and fire-affected rocks (FAR). Grading, erosion, off-road vehicle activity, and the construction of a culvert and associated drainage ditches had impacted the site (Berryman and Cheever 2001a). An evaluation excavation was completed as part of a new 230-kV transmission lines for the Imperial Valley Substation (Berryman and Cheever 2001b). The portion of the site within the area of impact was found ineligible for listing on the NRHP.

IMP-4959

CA-IMP-4959 was first recorded in 1983 as multi-component site with a ceramic and lithic scatter and a French gun flint. At the survey level, the site was determined potentially eligible for the NRHP (Foster and Greenwood 1983). A data recovery program was completed as part of the La Rosita 230-kV transmission lines (Gallegos et al. 1984). The results indicated that there was not a subsurface deposit. The update form indicates this site was not re-identified during a 2001 survey.

This site was relocated during the current survey. Artifacts included eleven FGPM flakes, two FGM flakes, one FGPM core, two FGPM assayed cobbles, and one FGM hammerstone. No ceramics were found. The site boundary was expanded and incorporates the isolate P-13-008455, which was recorded as a ceramic sherd.

IMP-4961

CA-IMP-4961 was first recorded in 1983 as a ceramic and lithic scatter with ceramic rim sherd, two flakes, one mano, and a possible dwelling located between two soil mounds. The update form indicates this site was not re-identified during a 2001 survey.

Two FGPM flakes and Topoc buff ceramic sherd were located in the vicinity of the mapped location of IMP-4961 during the current survey.

IMP-4962

CA-IMP-4962 was recorded in 1983 as a ceramic and lithic scatter with one hearth, three projectile points, two arrow shaft straighteners, one drill, ceramic sherds, and flakes. The hearth was later determined to be a cremation. At the survey level, the site was assessed as potentially eligible for NRHP (Foster and Greenwood 1983). As noted above, a data recovery program was completed at this site (Gallegos et al. 1984). A 2001 survey identified the site as a temporary campsite with four concentrations of artifacts located between the 50- and 60-foot contours. Artifacts included at least 170 ceramic sherds (buff, stucco, and brown ware) and 45 flakes. No formal tools were located in 2001 (Berryman and Cheever 2001a). Additional test excavations were conducted for the Imperial Valley Substation 230-kV transmission lines. Construction monitoring was recommended during the project (Berryman and Cheever 2001b).

During the current survey, this site was relocated within the northwestern corner of the SCIC mapped location of the site. A reduced boundary will be submitted in the site form update.

TABLE 3.7-2
Sites within Project APE

Trinomial or Temporary #	Type	Location
IMP-3999	Temporary camp	IVS-1
IMP-4485/4495	Temporary camp	IVS-3/IVS-4
IMP-4479	Ceramic scatter	IVS-5
IMP-4959	Ceramic and lithic scatter	IVS-1
IMP-4961	Ceramic and lithic scatter	IVS-1
IMP-4962	Temporary camp	IVS-1
IMP-4963	Ceramic and lithic scatter	IVS-1
IMP-5593	Sparse lithic scatter (isolate)	IVS-1
IMP-7874	Ceramic and lithic scatter	IVS-1
IMP-7875	Lithic scatter	IVS-1
S-1	Ceramic and lithic scatter	IVS-3
S-2	Historic road	IVS-5
S-5	Ceramic and lithic scatter	IVS-1
S-38	Ceramic and lithic scatter	IVS-1
IMP-115-S-2	Ceramic and lithic scatter	IVS-1
IMP-115-S-3	Sparse lithic scatter	
IMP-115-S-4	Lithic scatter	
IMP-115-S-5	Lithic scatter	IVS-1
IMP-115-S-6	Sparse lithic scatter	IVS-1
IMP-115-S-7	Sparse lithic scatter	IVS-1
IMP-115-S-8	Ceramic and lithic scatter	IVS-1

Source: RECON, 2010.

IMP-4963

CA-IMP-4963 was recorded in 1983 as a ceramic and lithic scatter with ten flakes and four ceramic sherds. The update form indicates this site was not re-identified during a 2001 survey.

This site was relocated during the current survey, and as a result the boundary of the site shifted to the east.

IMP-5593

CA-IMP-5593 was recorded in 1983 as an isolate consisting of one flake and one scraper tool. These artifacts were collected in 1983. During the current survey, four FGPM flakes, two FGPM cores, one FGPM assayed cobble, and four FARs were identified close to the mapped location of this site. This isolate is now a site.

IMP-7874

CA-IMP-7874 was recorded in 2001 as a ceramic and lithic scatter consisting of at least 10 ceramic sherds (Colorado Buff [CB] Ware), three pieces of debitage, and one possible core. This was relocated as described in 2001. Because GPS data exists for this site, it was not mapped in detail.

IMP-7875

CA-IMP-7875 was recorded in 2001 as a ceramic and lithic scatter consisting of at least 15 ceramic sherds (Salton Brown Ware), 5 pieces of debitage, and a shell pendant. The shell pendant was made of *Laevicardium* sp. and had a 0.5-cm-diameter hole drilled at one end. This artifact was collected during the survey. A test evaluation excavation was completed as part of mitigation for impacts resulting from two new 230-kV transmission lines for the Imperial Valley Substation (Berryman and Cheever 2001b). No further work was recommended for the project.

This site was relocated in slightly different location than the mapped boundary from SCIC. The site is between two existing transmission towers. Artifacts included three FGPM flakes and two quartz flakes. No ceramic sherds were found.

IMP-4485 (combined with IMP-4495)

CA-IMP-4485 was first recorded in 1981 as a temporary camp. Artifacts found included ceramic sherds (Tumco Buff, Tizon Brown Ware), flakes, metates, manos, hearths, and three areas of burned bone that may be possible cremations. During a 2001 survey for this site was combined with IMP-4495 (Berryman and Cheever 2001a). The site form updating this boundary was not part of the SCIC information. Data recovery excavations and surface collection had been completed at a portion of IMP-4495 (Gallegos et al. 1984). Additional test excavations were completed at the combined site as part of the Imperial Valley Substation transmission lines. Both studies recommended this site eligible for the NRHP.

This was relocated and the boundary expanded south from the mapped one for IMP-4485. The updated boundary incorporates the SCIC mapped locations for IMP-4485, -4493, -4494 and -4495. Due to the high-artifact density and time constraints, artifacts along the western boundary, artifacts near direct impact areas, and artifact concentrations were recorded using GPS technology. The eastern boundary of the site was also mapped with GPS technology; however, individual artifacts were not recorded. Artifacts recorded include flakes, cores, a Desert-side notched point, ceramic sherds (Colorado Buff, Tizon Brown Ware, and Black Mesa/Tumco), fish bone, metates, scattered fire-affected rocks, four artifact concentrations, and two burned bone concentrations that may potentially be human cremations. These two latter locations were confirmed as human cremations features by Dr. Arion Mayed from San Diego State University on November 8, 2010.

IMP-4495 (combined with IMP-4485)

CA-IMP-4495 was recorded in 1981 as a temporary camp with ceramic sherds, more than 100 flakes, fish bone, a possible cremation, and a hearth with shellfish remains. The update form describes the site as a ceramic and lithic scatter with one hearth and a possible cremation. The site was recommended as potentially eligible for listing on the NRHP (Foster and Greenwood 1983). A data recovery program was completed at this site as part of the mitigation for the La Rosita transmission lines (Gallegos et al. 1984). The cremation was outside the area of impact and was avoided. During a 2001 survey this site was combined with IMP-4485 (Berryman and Cheever 2001a). Additional test excavations were completed at the combined site as part of the Imperial Valley Substation transmission lines. Construction monitoring was recommended during the project (Berryman and Cheever 2001b). This site has been incorporated into IMP-4485/4495. As noted above in IMP-4485, the possible cremation was confirmed to be human by Dr. Mayes. Ceramic sherds and lithic artifacts as noted in IMP-4485 were identified within the boundary of IMP-4495.

2. Alternative 1-Alternative Transmission Line Corridor

Alternative 1-Alternative Transmission Line Corridor includes the 947-acre solar energy facility site (R-2 and IVS-6) as well as Transmission Lines IVS-1, IVS-4, and IVS-5, which follow a southern route to connect to the southwestern portion of the solar energy facility site (R-2). Thus, Alternative 1-Alternative Transmission Line Corridor (totaling 1,252 acres) can be summarized as follows:

- R-2 and IVS-6 South Solar Energy Facility Site (947 acres)
- IVS-1 Transmission Line 300-foot corridor (242 acres)
- IVS-4 Alternative Transmission Line 300-foot corridor (34 acres)
- IVS-5 Alternative Transmission Line Extension 500-foot corridor (29 acres)

IMP-4495 (combined with IMP-4485).
Previously discussed.

IMP-4479

CA-IMP-4479 was recorded in 1981 as small site consisting of six Tizon Brownware ceramic sherds. This site was not relocated in the 2001 RECON survey (Berryman and Cheever 2001a). This site was relocated during the current survey. Four BT ceramic sherds were within the mapped boundary. Four additional BT ceramic sherds were found outside the SCIC boundary. The boundary for this site has shifted toward the east.

3. Alternative 2-Reduced Solar Energy Facility Site

Alternative 2-Reduced Solar Energy Facility Site consists of a reduced 476-acre solar site (R-2 and IVS-6) in addition to the Transmission Lines IVS-1 and IVS-3 (same as in the Proposed Action), which connect with the northwestern portion of the solar energy facility site (R-2) (see Figure 3.7-1). To summarize, Alternative 2-Reduced Solar Energy Facility Site APE consists of the following components (totaling 786 acres):

- R-2 and IVS-6 South Solar Energy Facility Site (476 acres)
- IVS-1 Transmission Line 300-foot corridor (242 acres)
- IVS-3 Transmission Line Extension 500-foot corridor (68 acres)

No additional sites were found within this alternative because the alternative resulted in a reduction of the solar energy facility site size.

4. Alternative 3-No Action/No Project Alternative

Under the Alternative 3-No Action/No Project Alternative, the IV South Solar Energy Facility would not be approved and would not be used for solar power generation. The solar energy facility (R-2) would remain as agricultural land, and none of the transmission line corridors would be utilized.

B. Newly Recorded Prehistoric Sites

1. Proposed Action

5726-S-5

5726-S-5 is a ceramic and lithic scatter in an area of sparse creosote bush scrub, east of the existing substation. The site measures 48 m E–W by 37 m N–S, and has an area of 1,331 m². A north-south trending transmission service dirt road is approximately 15 m to the west.

5726-S-38

5726-S-38 is a sparse ceramic and lithic scatter with a rock feature in an area of sparse creosote bush scrub. The site measures 77 m NW-SE by 45 m SW–NE, and has an area of 2,251 m². A dirt transmission service road skirts the eastern edge of the site.

IMP-115-S-2

IMP-115-S-2 is a ceramic and lithic scatter composed of 2 loci.

IMP-115-S-3

IMP-115-S-3 is a small sparse lithic scatter.

IMP-115-S-4

IMP-115-S-4 is a small lithic scatter consisting of one FGM flake, two FGPM flakes, and a complete portable sandstone metate.

IMP-115-S-5

IMP-115-S-5 is a lithic scatter consisting of one FGM flake, eight FGPM flakes, one quartzite mano (unifacial and lightly used), and one quartzite core.

IMP-115-S-6

IMP-115-S-6 is a sparse lithic scatter consisting of two FGM flakes and three FGPM flakes. It is on the east edge of a N–S-trending gravel bar, approximately 50 m SE of an existing transmission tower. The gravel bar may be push-up from construction of the tower.

IMP-115-S-7

IMP-115-S-7 is a sparse lithic scatter consisting of 12 FGPM secondary flakes. It is approximately 30 m NE of an existing transmission tower.

IMP-115-S-8

IMP-115-S-8 is a ceramic and lithic scatter located in a residual pan filled with granitic pebbles and decomposing granite. The site is on the Lake Cahuilla shoreline berm.

5726-S-1

5726-S-1 is a sparse ceramic and lithic scatter consisting of eight FGPM flakes, one FGM flake, one quartz flake, one BT ceramic sherd, and two sandstone FAR fragments.

2. Alternative 1-Alternative Transmission Line Corridor

No additional sites were found within the Alternative 1-Alternative Transmission Line Corridor.

3. Alternative 2-Reduced Solar Energy Facility Site

No additional sites were found within the Alternative 2-Reduced Solar Energy Facility Site.

C. Newly Recorded Historic Period Site

1. Proposed Action

No additional sites were found within the Proposed Action.

2. Alternative 1-Alternative Transmission Line Corridor

5726-S-2

5726-S-2 is an historic-period single-lane road segment and an associated array of roadside refuse deposits and scatters. The road alignment is oriented essentially in a W-SW to E-NE direction, and is composed of two remaining segments. A portion of the roadbed, approximately 500 ft. (152 m) between the two segments, has been obliterated through various mechanisms.

The roadbed is generally composed of decomposed granite and granitic base rock, and is slightly elevated above ground, varying between 2 and 18 inches, depending on topography. At irregular intervals, several 12-foot-long 4-inch-by-6-inch planks are set along the bermed edges of the roadbed, oriented parallel to the direction of travel. None of the planks, some of which appeared to have been anchored with large round spikes, were found within the center of the road, and probably defined the edge along its entire length.

In addition to the roadbed feature, there are numerous individual cans, bottles, and other historic artifacts, as well as four primary refuse dumps scattered along the alignment. The predominant artifact type appears to be condensed milk (IMACS 1992). Manufacturing styles and marks on various artifacts strongly

suggest early turn-of-the-20th-Century use of the site, with continued and occasional use through the middle 1950s.

This road alignment does not appear on the most recent USGS 7.5-minute Mount Signal quadrangle (1957) or on the USGS 15-minute Heber quadrangle (1957), the oldest map for this area provided by SCIC as part of the record search. The closest road on both the Mount Signal and Heber quadrangles is the existing dirt road along the border and south of 5726-S-2.

3. Alternative 2-Reduced Solar Energy Facility Site

No additional sites were found within the Alternative 2-Reduced Solar Energy Facility Site.

3.7.2.7 Native American Religious Concerns

A. Sacred Lands File Search Results

A Sacred Lands File search request was submitted to the NAHC on October 6, 2010. The response letter dated October 12, 2010, established that the Sacred Lands File (SLF) search for the project area failed to indicate the presence of Native American cultural resources in the immediate project area. The letter indicated consultation as the best way to avoid unanticipated discoveries. A list of contacts for adjacent tribes was enclosed. Specifically, the letter recommended contacting Carmen Lucas for insight regarding specific information about the cultural resource location in the project area.

B. Native American Consultation

With the filing of the Imperial Valley Solar Energy Center South application for a ROW, the BLM, as the lead federal agency, invited tribes into consultation pursuant to the Executive Memorandum of April 29th, 1994, as well as other relevant laws and regulations, including Section 106 of the NHPA. To date, ten Native American tribes have been identified and invited to consult on this project. The BLM invited the tribes into government-to-government consultation by letter on 6/24/2010. The BLM has received responses from the Fort Yuma Quechan Tribe and the Cocopah Indian Tribe indicating their interest in the project and their desire to continue consultation. The BLM, El Centro Field Office Archaeologist also received a phone call and discussed the project with Ms. Carmen Lucas of the Kwaaymii Laguna Band of Mission Indians. She requested additional information regarding the project and will continue to be consulted. The BLM is continuing to provide updates on the status of the environmental review process and the Section 106 process, invite the tribes into government-to-government consultation, and request their help in identifying any issues or concerns. The cultural resource inventory reports were sent to all tribes for their review and comment on November 1, 2010. The letter included with the reports also invited Tribes to a meeting and archaeological sites visit to be held in El Centro on November 16, 2010. The meeting will present information to the tribes regarding the proposed project and will be an opportunity for Tribes to ask questions or express their concerns regarding the proposed project. The consultation process is still ongoing.

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3.8 Noise

3.8.1 Regulatory Framework

3.8.1.1 Federal

Occupational Safety and Health Act of 1970

Onsite noise levels are regulated by Federal Occupational Safety and Health Administration (OSHA). This regulation protects workers from the effects of occupational noise exposure. The noise exposure level of workers is regulated at 90 dBA over an 8-hour work shift to protect hearing (29 Code of Regulations [CFR] 1910.95). Employee exposure to levels exceeding 85 dBA requires that employers develop a hearing conservation program. Such programs include adequate warning, the provision of hearing protection devices, and periodic employee testing for hearing loss.

3.8.1.2 State

California Occupational Safety and Health Administration has promulgated Occupational Noise Exposure Regulations (California Code of Regulations, Title 8, Section 5095–5099) that set employee noise exposure limits. These standards are equivalent to the Federal OSHA standards.

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land use compatibility criteria. The State of California General Plan Guidelines, published by the Governor's Office of Planning and Research (OPR) in 1998, also provide guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. The County of Imperial has utilized the adjustment factors provided and has modified the state's Land Use Compatibility standards for the purpose of implementing the Noise Element of its General Plan. Table 3.8-3 summarizes the acceptable and unacceptable community noise exposure limits for various land use categories as currently defined by the State of California.

3.8.1.3 Local

County of Imperial General Plan

The County of Imperial General Plan Noise Element identifies and defines existing and future environmental noise levels from sources of noise within or adjacent to the County of Imperial; establishes goals and objectives to address these impacts, and provides Implementation Programs to implement these goals and objectives. Goals and objectives applicable to the Proposed Action include:

A. Goals and Objectives

Goals

- Provide an acceptable noise environment for existing and future residents in Imperial County.
- Review proposed projects for noise impacts and require design which will provide acceptable indoor and outdoor noise environments.
- Provide for environmental noise analysis inclusion in long range planning activities which affect the County.

Objectives

- Adopt noise standards which protect sensitive noise receptors from adverse impacts.
- Ensure that noise standards and policies are compatible with the standards and policies of other General Plan Elements and other County agencies.
- Control noise levels at the source where feasible.
- Identify sensitive receptors with noise environments which are less than acceptable, and evaluate measures to improve the noise environment.
- Adopt criteria delineating projects which should be analyzed for noise impact to sensitive receptors.
- Provide acoustical analysis guidelines which minimize the burden on project proponents and project reviewers.
- Work with project proponents to utilize site planning, architectural design, construction, and noise barriers to reduce noise impacts as projects are proposed.
- Coordinate regularly with Caltrans to obtain information on trends and plans for roadway changes and improvements which could affect the noise environment.

B. Implementation Programs and Policies

The General Plan Noise Element policies related to the Proposed Action are identified below. Table 3.8-1 summarizes the project's consistency with the applicable General Plan noise policies.

While this EIR/EA analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Noise Impact Zones

A Noise Impact Zone is an area that is likely to be exposed to significant noise. The County of Imperial defines a Noise Impact Zone as an area which may be exposed to noise greater than 60 dB CNEL or 75 dB L_{eq}(1).

TABLE 3.8-1
Project Consistency with Applicable General Plan Noise Policies

General Plan Policies	Consistency with General Plan	Analysis
1) Acoustical Analysis of Proposed Projects The County shall require the analysis of proposed discretionary projects, which may generate excessive noise, or which may be impacted by existing excessive noise levels.	Yes	A noise study has been completed for the project. Short-term and long-term impacts were found to be less than significant, as described in Section 4.8.
2) Noise/Land Use Compatibility Where acoustical analysis of a proposed project is required, the County shall identify and evaluate potential noise/land use conflicts that could result from the implementation of the project. Projects which may result in noise levels that exceed the "Normally Acceptable" criteria of the Noise/Land Use Compatibility Guidelines shall include mitigation measures to eliminate or reduce the adverse noise impacts to an acceptable level.	Yes	Refer to analysis of Policy 1.
3) Interior Noise Environment Where acoustical analysis of a proposed project is required, the County shall identify and evaluate projects to ensure compliance to the California (Title 24) interior noise standards and the additional requirements of this Element.	Yes	Refer to analysis of Policy 1.
4) New Noise Generating Projects The County shall identify and evaluate projects which have the potential to generate noise in excess of the Property Line Noise Limits. An acoustical analysis must be submitted which demonstrates the project's compliance.	Yes	Refer to analysis of Policy 1.
5) Project Which Generate Off-site Traffic Noise The acoustical analysis shall identify and evaluate projects which will generate traffic and increase noise levels on off-site roadways. If the project site has the potential to cause a significant noise impact to sensitive receptors along those roadways, the acoustical analysis report shall consider noise reduction measures to reduce the impact to a level less than significant.	Yes	Refer to analysis of Policy 1.

Source: County of Imperial General Plan Noise Element, 1997.

The purpose of the Noise Impact Zone is to define areas and properties where an acoustical analysis of a Proposed Action is required to demonstrate project compliance with land use compatibility requirements and other applicable environmental noise standards. For purposes of the Noise Element, any property is defined as being in a Noise Impact Zone if it is.

- Within the Noise Impact Zone distances to classified roadways, as indicated in Table 3.8-2.
- Within 750 feet of the centerline of any railroad.
- Within 1,000 feet of the boundary of any railroad switching yard.
- Within the existing or projected 60 db CNEL contour of any airport or approved ALUCP.
- Within one-quarter mile of existing farmland which is in an agricultural zone.

TABLE 3.8-2
Roadway Noise Impact Zones

Roadway Classification	Distance from Centerline (Feet)
Interstate	1,500
State Highway or Prime Arterial	1,100
Major Arterial	750
Secondary Arterial	450
Collector Street	150

Source: Imperial County General Plan Noise Element, 1993

Any noise sensitive land uses, such as residential land uses, located within the specified distances from the various roadways listed in Table 3.8-2 are considered to be within a Roadway Noise Impact Zone. These zones are areas where the exterior noise level is expected to exceed the exterior noise standard and thus warrant further analysis to determine the level of impact to the specific land use and to develop any necessary noise mitigation measures.

Noise/Land Use Compatibility Standards

Land use compatibility defines the acceptability of a land use in a specified noise environment. Table 3.8-3 provides the County of Imperial Noise/Land Use Compatibility Guidelines. When an acoustical analysis is performed, conformance of the Proposed Action with the Noise/Land Use Compatibility Guidelines is used to evaluate the potential noise impact and will provide criteria for environmental impact findings and conditions for project approval.

Interior Noise Standards

The California Noise Insulation Standards provided in California Code of Regulations Title 24, establishes a maximum interior noise level, with windows closed, of 45 dB CNEL, due to exterior sources.

TABLE 3.8-3
Land Use Compatibility for Community Noise Environments

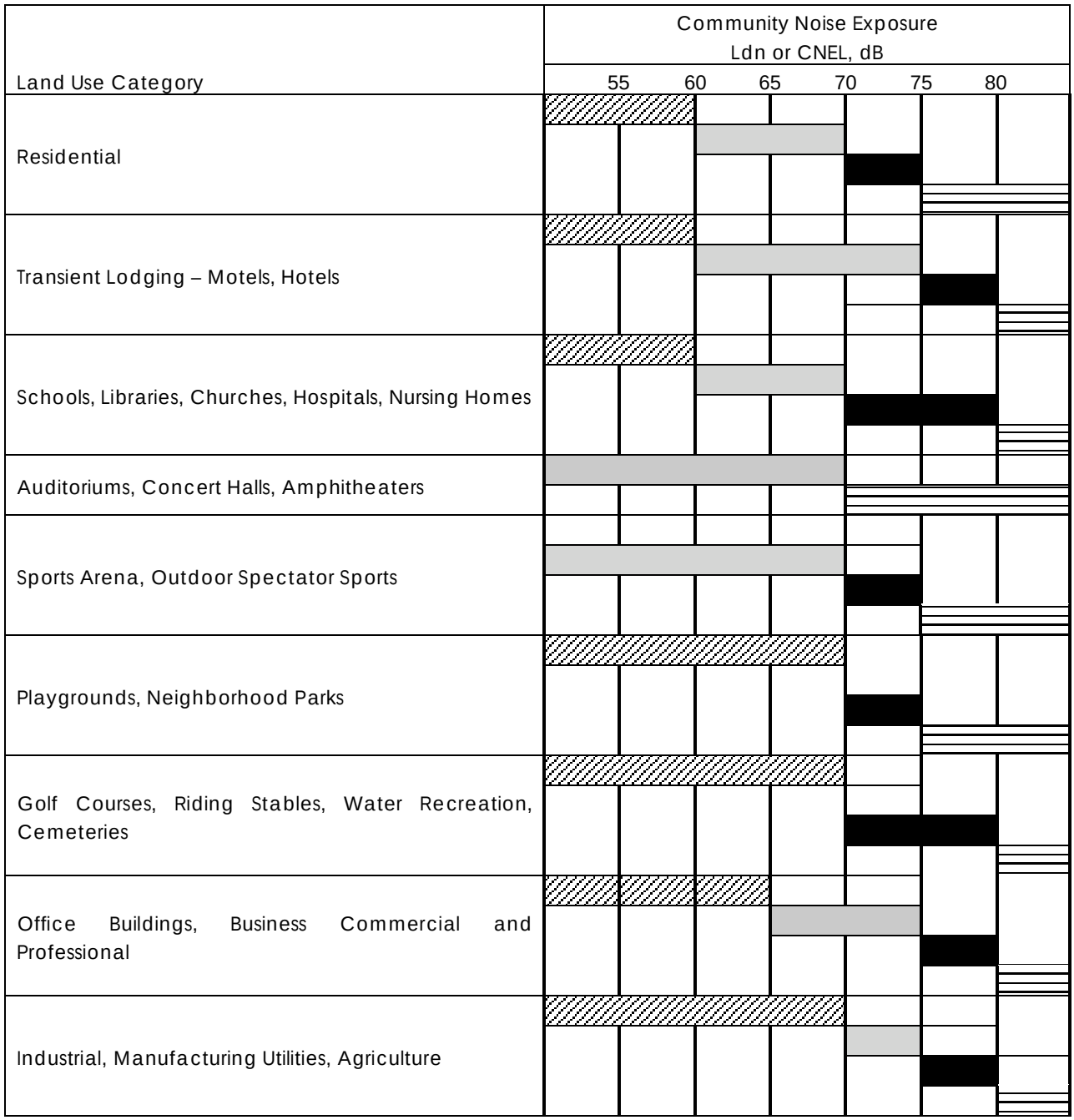
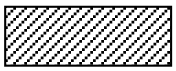


TABLE 3.8-3
Land Use Compatibility for Community Noise Environments

(cont'd.)

Interpretation:



Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: County of Imperial, 1993.

The County of Imperial has established the following interior noise standards to be considered in acoustical analyses:

- The interior noise standard for detached single family dwellings shall be 45 dB CNEL; and
- The interior noise standard for schools, libraries, offices and other noise-sensitive areas where the occupancy is normally only in the day time, shall be 50 dB averaged over a one-hour period ($L_{eq}(1)$).

Construction Noise Standards

Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq} when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual receptor of days or weeks.

Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sundays or holidays.

County of Imperial Noise Ordinance

Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). Noise limits are established in Chapter 2 of this ordinance. Under Section 90702.00 of this rule, 70 dB is the normally acceptable limit for the Industrial, Manufacturing, Utilities, and Agricultural category of land use.

Imperial County Right-to-Farm Ordinance

In recognition of the role of agriculture in the county, the County of Imperial has adopted a "right-to-farm" ordinance (County of Imperial Codified Ordinances, Division 2, Title 6: Right to Farm). A "right-to-farm" ordinance creates a legal presumption that ongoing standard farming practices are not a nuisance to adjoining residences and requires a disclosure to land owners near agricultural land operations or areas zoned for agricultural purposes. The disclosure advises persons regarding potential discomfort and inconvenience that may occur from operating machinery as a result of conforming and accepted agricultural operations.

3.8.2 Affected Environment

The noise analysis provided in this section is summarized from the *Construction Acoustical Site Assessment Imperial Solar Energy Center South* prepared by Investigative Science and Engineering, Inc. (ISE) (August 19, 2010). This document is provided on the attached CD of Technical Appendices as Appendix E of this EIR/EA.

3.8.2.1 Noise Measurement Scales and Noise Attenuation

The standard unit of measurement of noise is the decibel (dB). The decibel measurement is logarithmic; meaning each increase in one decibel is a tenfold increase in the level of noise. A sound level of zero "0" decibels (dB) is the threshold of human hearing. This level would be barely audible to a human of normal

hearing under extreme silent listening conditions. Typically, the quietest environmental conditions (rural areas with extensive shielding) yield sound levels of approximately 20 dB. Normal speech has a sound level of approximately 60 dB. Sound levels above 120 dB roughly correspond to the threshold of pain and would be associated with sources such as jet engine noise or pneumatic equipment. The minimum change in sound level that the human ear can detect is approximately 3 dB. A change in sound level of 10 dB is usually perceived by the average person as a doubling (or halving) of the sounds loudness. A change in sound level of 10 dB actually represents an approximate 90 percent change in the sound intensity, but only about a 50 percent change in the perceived loudness.

Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The method commonly used to quantify environmental sounds consists of determining all of the frequencies of a sound according to a weighting system that reflects the nonlinear response characteristics of the human ear. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level, or dBA. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the decibel curve.

Community noise levels are measured in terms of the A-weighted decibel. The County of Imperial uses the Community Noise Equivalent Level (CNEL) scale for land use/noise compatibility assessment. The CNEL is a time-weighted noise measurement scale that represents the average noise level over a 24-hour period, and is based on the A-weighted decibel. Time weighting refers to the fact that noise occurring during certain noise-sensitive time periods is given greater significance. In the calculation of CNEL, noise that occurs during the evening time period (7 p.m. to 10 p.m.) is weighted by 5 dB and a 10 dB weighting during the nighttime period (10 p.m. to 7 a. m.).

The County of Imperial also uses the Leq scale to measure community noise levels. The Leq scale represents the average energy noise level over a sample period of time. The Leq represents the decibel sound level that would contain the same amount of energy, as a fluctuating sound level over the sample time period.

Noise Attenuation

The noise level from a particular source generally declines as the distance to the receptor increases. Other factors such as the weather and reflecting or shielding also intensify or reduce the noise level at any given location. Typically, a single row of buildings between the receptor and noise source reduces the noise level by about 5 dBA. Exterior noise levels can normally be reduced by 15 dBA inside buildings constructed with no special noise insulation.

Noise from traffic on roads depends on the volume and speed of traffic and the distance from the traffic. A commonly used rule of thumb for traffic noise is that for every doubling of distance from the road, atmospheric spreading over hard or soft sites reduces the noise level by about 3 or 4.5 dBA, respectively. For a stationary source, the noise is reduced by at least 6 dBA for each doubling of distance. Further,

because of the logarithmic nature of the decibel scale, a doubling of traffic on any given roadway or doubling a stationary source would cause a noise increase of approximately 3 dBA.

3.8.2.2 Groundborne Vibration

Groundborne vibration is measured in terms of the velocity of the vibration oscillations. As with noise, a logarithmic decibel scale (VdB) is used to quantify vibration intensity. Groundborne vibration is usually perceived as annoying to building occupants when it exceeds 80 Vdb (for fewer than 70 vibration events per day). The degree of annoyance depends on the type of land use, individual sensitivity to vibration, and the frequency of vibration events. Typically, vibration levels must exceed 100 Vdb before building damage.

3.8.2.3 Existing Noise Levels

A. Existing Noise Exposure

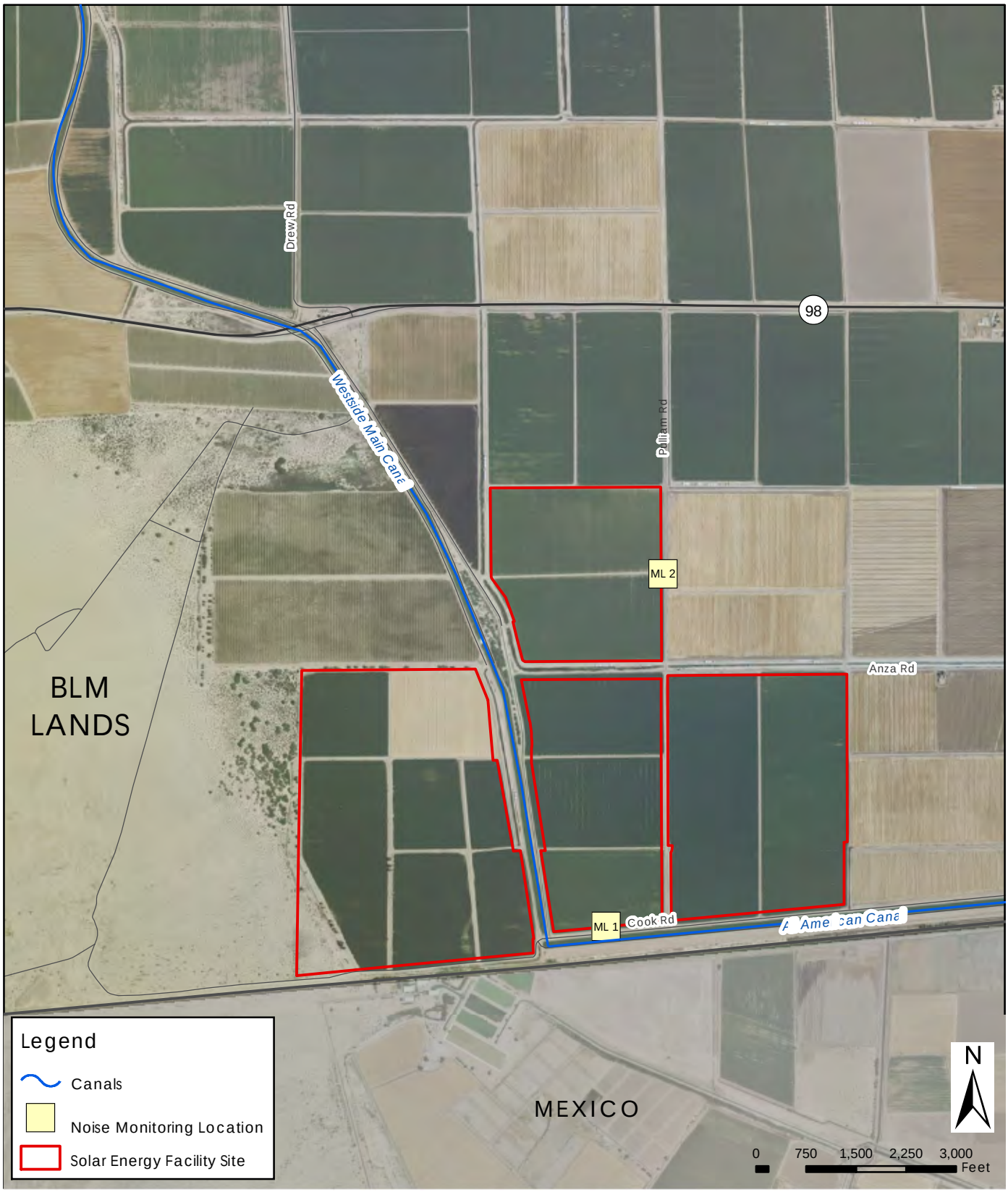
Ambient noise levels were measured at two noise-monitoring locations (ML1 and ML2). The measurements collected reflect ambient sound levels representative of the extremely rural agricultural setting of the Proposed Action. The major source of existing noise at ML 1 was from the infrequent movement of U.S. Border Patrol units while at ML2 noise dominance was entirely from background community and far-field noise. No unusual noise sources or levels were indicated during the acoustical site assessment. Table 3.8-4 provides the ambient noise levels measured at two locations within the solar energy facility site. The values for the predicted equivalent sound level (L_{eq-h}), the maximum and minimum measured sound levels (L_{max} and L_{min}), and the statistical indicators L_{10}, L_{50}, and L_{90} are provided for each of the monitoring stations. Figure 3.8-1 depicts the locations of the ambient noise levels measured at these two locations. These measurement locations were selected to present the ambient baseline conditions on the solar energy facility site. As shown in Table 3.8-4, the measured ambient noise levels onsite range between approximately 43.3 and 44.2 dBA Leq.

TABLE 3.8-4
Existing Ambient Noise Levels

Monitoring Location [1]	1-Hour Noise Level Descriptors in dBA					
	L_{eq}	L_{max}	L_{min}	L_{10}	L_{50}	L_{90}
ML 1	44.2	75.8	36.3	43.6	40.2	38.7
ML 2	43.3	66.8	30.7	42.8	36.2	34.3

Notes: Measurements performed by ISE on July 30, 2010.
Monitoring Location 1: Along Cook Road frontage approximately 100-feet from roadway centerline.
Monitoring Location 2: Along Pulliam Road approximately 50-feet from centerline location.
1 = See Figure 3.8-1 for ambient measurement location.

Source: ISE, 2010.



SOURCE: ISE, Inc., 2010; ESRI, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Ambient Noise Monitoring Location Map

FIGURE 3.8-1

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 8\Figure 3.8-1 Ambient Noise ML.mxd

B. Existing Roadway Noise Levels

The existing (2010) traffic noise levels in the project area were established in terms of the CNEL metric by modeling the roadway for the current traffic and speed characteristics. Streets with the highest volumes of traffic generate the highest noise levels. Table 3.8-5 depicts the distance to the CNEL contour needed to achieve 60, 65,70, and 75 dB noise levels for the 2010 existing traffic volumes.

TABLE 3.8-5
2010 Existing Traffic Noise Conditions

Roadway	Segment	ADT	Speed (MPH)	SPL (dBA)	CNEL Contour Distances (feet)			
					75 CNEL	70 CNEL	65 CNEL	60 CNEL
Drew Road	I-8 to SR-98	692	45	57.8	4	8	17	36
Brockman Road	McCabe Rd. to SR-98	272	45	53.7	2	4	9	19
	SR-98 to Anza Rd.	84	45	48.6	1	2	4	9
Forrester Road	I-8 to McCabe Rd.	1,320	45	60.6	5	12	25	55
McCabe Road	Brockman Rd. to Forrester Rd.	897	45	58.9	4	9	20	42
Pulliam Road	SR-98 to Anza Road	105	45	49.6	1	2	5	10
SR-98	Drew Rd. to Pulliam Rd.	1,823	45	62.0	7	15	32	68
	Pulliam Rd. to Brockman Rd.	1,823	45	62.0	7	15	32	68
	Brockman Rd. to Clark Rd.	1,852	45	62.1	7	15	32	69

Notes: CNEL = Community Noise Equivalent Level.
ADT= Average Daily Trips.
SPL= Sound Pressure Level in dBA at 50-feet from the road edge.
Source: ISE, 2010.

C. Existing Vibration Levels

The project site is currently in agricultural production. As such, the project site may experience groundborne vibration from the use of agricultural equipment. However, there are no sensitive receptors within or adjacent to the project site.

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3.9 Agricultural Resources

3.9.1 Regulatory Framework

3.9.1.1 Federal

Farmland Protection Policy Act (FPPA)

The purpose of the law is to minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The FPPA also stipulates that federal programs be compatible with state, local and private efforts to protect farmland. The U.S. Department of Agriculture's Natural Resources Conservation Service is charged with oversight of the FPPA.

3.9.1.2 State

The Williamson Act (California Land Conservation Act, California Government Code, Section 51200 et. seq.)

The Williamson Act is a statewide mechanism for the preservation of agricultural land and open space land. The Act provides a comprehensive method for local governments to protect farmland and open space by allowing lands in agricultural use to be placed under contract (agricultural preserve) between a local government and a land owner.

3.9.1.3 Local

County of Imperial General Plan

The Agricultural Element of the General Plan serves as the primary policy statement for implementing development policies for agricultural land use in Imperial County. The Goals, Objectives, Implementation Programs, and Policies found in the Agricultural Element provide direction for private development as well as government actions and programs. Imperial County's Goals and Objectives are intended to serve as long-term principles and policy statements to guide agricultural land use decision-making and uphold the community's ideals.

County of Imperial Right to Farm Ordinance No. 1031

The purpose and intent of the County of Imperial 's Right to Farm Ordinance is to reduce the loss to the County of its agricultural resources by clarifying the circumstances under which agricultural operations may be considered a nuisance. The Ordinance includes a requirement for disclosure of agricultural operations as part of real estate transactions that may occur in the vicinity of agricultural operations.

3.9.2 Affected Environment

In the nineteenth century, Imperial Valley held little attraction for settlers. The stage routes along the Southern Emigrant Trail and the Alternate Eastern Route to San Diego were the main transportation corridors through the valley for years. Although many people traveled through Imperial Valley, few

recognized its agricultural potential. In March of 1900, surveys for a feasible canal route from the Colorado River to Imperial Valley were conducted and the Imperial Land Company was formed as a subsidiary of the California Development Company. The Imperial Land Company was organized to promote opportunities for agricultural development of the Valley and to bring in settlers. The settlers would be able to claim government land under the Desert Land Act. In 1901, the California Development Company succeeded in conveying the first irrigation water to Imperial Valley with the opening of the Alamo Canal. Imperial Valley began to develop rapidly as land was cleared and more irrigation and drainage ditches were completed. By 1907, Imperial County, originally part of San Diego County, was incorporated as a separate jurisdiction.

In recent years, several factors have significantly altered the agricultural conditions in the County. Expanded population has given rise to booming residential and commercial development, which in turn has substantially increased the value of land and the cost of water and labor essential for successful agricultural production. As urbanization expands throughout the County, there is a growing economic incentive for local farmers to sell off agricultural lands or relocate their operations elsewhere, and agricultural land within the County is gradually disappearing, although the pace has slowed down somewhat with the recent housing slump and economic recession.

3.9.2.1 Existing Activities

The Proposed Action consists of three primary components: 1) the construction and operation of the Imperial Solar Energy Center South solar energy facility; 2) the construction and operation of the electrical transmission lines that would connect from the solar power facility to the existing Imperial Valley substation; and, 3) the request for construction and operational access to the solar energy facility via use of an existing dirt road located along the west side of the Westside Main Canal. The road traverses BLM lands and private lands.

The transmission line corridor is located on BLM lands and is not subject to agricultural uses as agricultural uses are prohibited in this area by the CDCA. The 946.6 gross acre (838 net buildable acres) solar energy facility portion of the project site is located on privately-owned, undeveloped and agricultural lands, in the unincorporated Mt. Signal area of the County of Imperial, approximately eight miles southwest of the City of El Centro. A majority of this portion of the project site is currently used for agricultural purposes (alfalfa production). The All-American Canal abuts the southeastern boundary of the proposed solar energy facility site. The Westside Main Canal bisects the site in a north-south direction. In addition, relatively small and stagnant canals were observed between the northern and central portions and between the eastern and south-central portions of the site. Cement-lined irrigation ditches observed to be out-of-service, and in some cases, under repair, are located throughout the north half of the western portion and south half of the western portion of the site. There is an existing dirt access road located west of the Westside Main Canal. This road is currently being used for Imperial Irrigation District (IID) maintenance operations, Border Patrol operations, BLM operations, local agricultural operations and shipping, and is currently available for use by the general public.

3.9.2.2 Zoning

The solar energy facility site is zoned A-2-R (General Agricultural Rural Zone) and A-3 (Heavy Agriculture) pursuant to the County's Land Use Ordinance. Pursuant to the Imperial County General Plan, the site is located within land designated for agricultural uses. The site is adjacent to the US-Mexico border to the south, the BLM Utility Corridor "N" is located immediately to the west, and agricultural lands to the north and east. The Proposed Action would not conflict with the existing zoning of the site that currently allows for agricultural use, as it is a conditionally allowed use under the existing zoning categories.

3.9.2.3 Important Farmland Categories

The California Department of Conservation Farming, Mapping and Monitoring Program (FMMP) produces Important Farmland Maps, which are a hybrid of soil resource quality and land use information. USDA Soil Survey information (see Section 3.9.2.4), and the corresponding Important Farmland candidacy recommendations are used in the assessment of local land. The goal of the program is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. According to the 2004 FMMP, the site contains land designated as Prime Farmland and Farmland of Statewide Importance.

Figure 3.9-1 depicts the Important Farmlands Classifications on-site. Table 3.9-1 provides the approximate acreage amounts associated with each of the Important Farmland Classifications on-site.

TABLE 3.9-1
Department of Conservation Important Farmlands On-Site

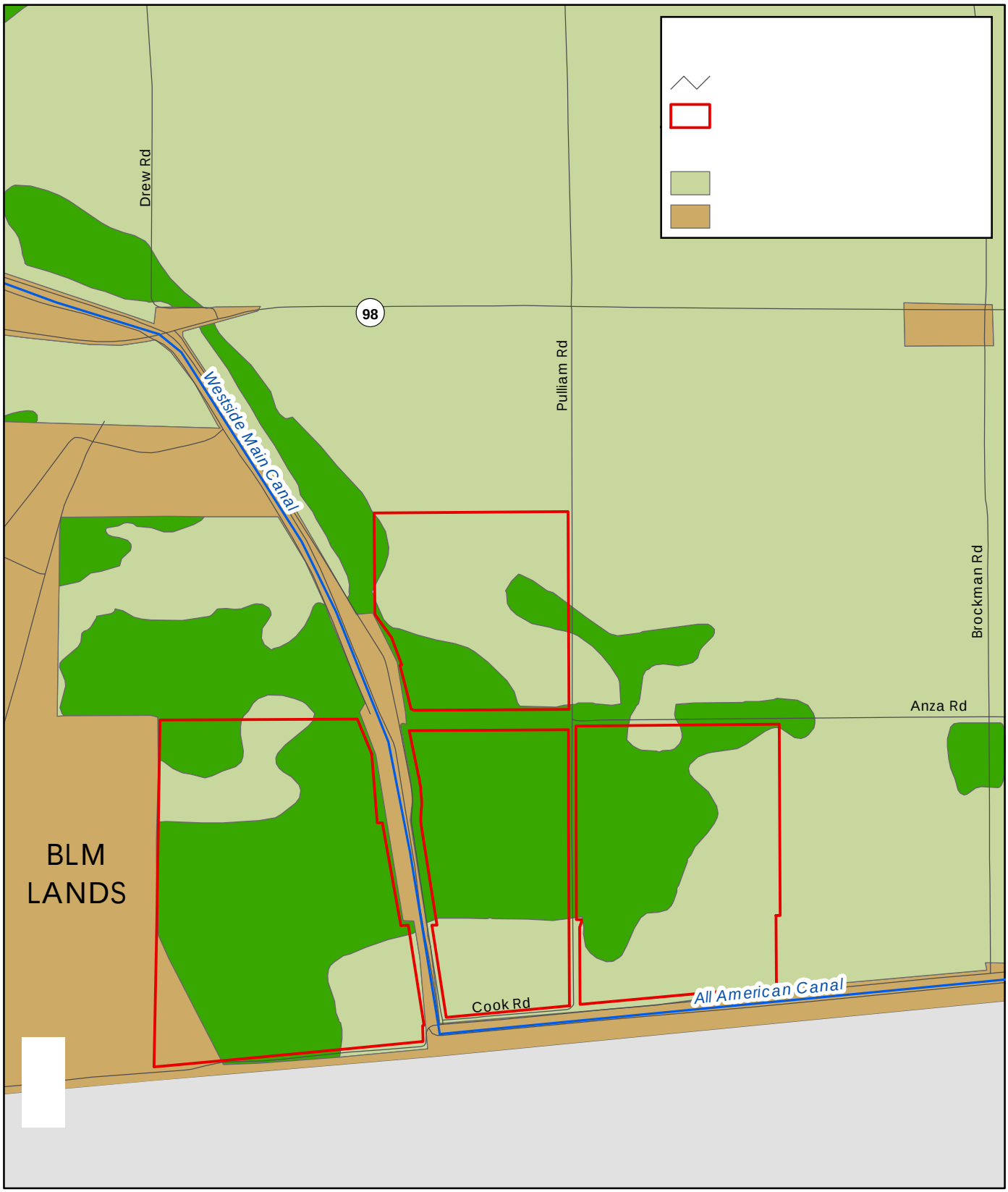
Agriculture Classification	Approximate Acreage
Prime Farmland	478.9
Farmland of Statewide Importance	341.8
Unique Farmland	-
Farmland of Local Importance	-
Urban & Built-Up	-
Other Land	22.0
Totals	842.7

Source: California Department of Conservation, 2004.

A. Prime Farmland

Prime Farmland is defined by the California Department of Conservation as:

> "land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at sometime during the [past four years]."



SOURCE: CA Dept of Conservation, 2008; ESRI, 2010; BRG Consulting, Inc., 2010

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BRG CONSULTING, INC.

Imperial Solar Energy Center South

Important Farmlands

FIGURE 3.9-1

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 9\Figure 3.9-1 Important Farmland.mxd

As depicted in Figure 3.9-1, land classified as Prime Farmland (approximately 478.9 acres) is located throughout the majority of the solar facility portion of the site.

B. Farmland of Statewide Importance

Farmland of Statewide Importance is defined by the California Department of Conservation as:

> "land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops at sometime during the [past four years]."

Land classified as Farmland of Statewide Importance (approximately 341.8 acres) is located throughout the solar facility portion of the site, with the largest portions occurring on the northern and eastern portions of the project site (Figure 3.9-1).

C. Unique Farmland

Unique Farmland is defined by the California Department of Conservation as:

> "lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been used for production of irrigated crops at sometime during the [past four years]."

No portion of the project site is classified as Unique Farmland (Figure 3.9-1).

D. Farmland of Local Importance

Farmland of Local Importance is defined by the California Department of Conservation as:

> "land that meets all the characteristics of Prime and Statewide, with the exception of irrigation. Farmlands not covered by the above categories but are of significant economic importance to the county. They have a history of good production for locally adapted crops. The soils are grouped in types that are suited for truck and orchid crops."

No portion of the site is classified as Farmland of Local Importance (Figure 3.9-1).

E. Other Land

Other Land is defined by the California Department of Conservation as:

> "land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits; and, water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land."

As depicted in Figure 3.9-1, land classified as Other Land (approximately 22.0 acres) includes the existing access road and land located in the southwest corner of the proposed solar energy facility site.

3.9.2.4 Imperial County Agriculture Conversion

Table 3.9-2 depicts the conversions of agricultural land to non-agricultural uses within Imperial County from 2004-2006. As depicted in this table, 196,177 acres of Prime, 311,645 acres of Statewide Importance, 2,281 of Unique, and 33,037 acres of Farmland of Local Importance were inventoried in 2006. Based on the County's total acreage, the lands identified by the FMMP for the site as Prime Farmland and Farmland of Statewide Importance comprise .0005 percent and .0003 percent of the total land respectively.

As shown in Table 3.9-2, there was a net loss of agricultural lands within Imperial County from 2004-2006. The trend in the conversion of agricultural land is expected to continue due to development pressure, and other factors.

TABLE 3.9-2
Imperial County Change in Agricultural Land Use Summary
(2004-2006)

Land Use Category	Total Acreage Inventoried		2004-2006 Acreage Changes			
	2004	2006	Acres Lost (-)	Acres Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	196,928	196,177	1,335	584	1,919	-751
Farmland of Statewide Importance	313,218	311,645	2,028	455	2,483	-1,573
Unique Farmland	2,133	2,281	85	233	318	148
Farmland of Local Importance	33,333	33,037	1,789	1,493	3,282	-296
Important Farmland Subtotal	545,612	543,140	5,237	2,765	8,002	-2,472
Grazing Land	0	0	0	0	0	0
Agricultural Land Subtotal	545,612	543,140	5,237	2,765	8,002	-2,472
Urban and Built-Up Land	26,358	26,897	706	1,245	1,951	539
Other Land	455,698	457,511	967	2,780	3,747	1,813
Water Area	902	1,022	0	120	120	120
Total Area Inventoried (1)	1,028,570	1,028,570	6,910	6,910	13,820	0

Source: Farmland Conversion Report 2004 to 2006 (Department of Conservation).

F. Agricultural Soils

In 1973, the U.S. Department of Agriculture (USDA) conducted a Soil Survey for the Imperial Valley Area and published maps and guidelines to define the condition and location of various kinds of soils in the region. Soils were characterized according to their appearance, depth, consistency, slope, and erosion factors.

The Soil Survey has grouped the various soil types identified in its study into eight soil Capability Classes according to any limiting characteristics that would prevent suitable use for agricultural purposes. These classes are indicated below in Table 3.9-3. Soils are graded I-VIII, with I denoting the most suitable class for cultivation.

Soils are also rated by the Storie Index, a numerical system expressing the relative degree of suitability, or value of a soil for general intensive agriculture use. The index considers a soil's color and texture, the depth of nutrients, presence of stones, and slope, all of which relate to the adequacy of a soil type for use in crop cultivation. The rating does not take into account other factors, such as the availability of water for irrigation, the climate, and the distance from markets. Values of the index range from 1 to 100 and are divided into six grades, with an index of 100 and a grade of 1 being the most suitable farmland. Table 3.9-4 depicts the Storie Index classifications. The Storie Index of soils in the Imperial Valley region range from 5 to 97. The Storie Index of a soil indicates the relative degree of value of the soil for general intensive agriculture and is based on soil characteristics only. Soils that have a Storie rank of 10 or below are considered to have a very low agricultural potential. Soils are considered to be prime for high quality agricultural production if their Storie Index Rating is 80 or greater.

TABLE 3.9-3
Soil Capability Classes

Class	Description
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice plants or that require moderate conservation practices.
III	Soils have severe limitations that reduce the choice plants, require very careful management, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial crop production and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes.

Source: United States Department of Agriculture, 1973.

TABLE 3.9-4
Storie Index Ratings

Grade	Index Rating	Description
1	80 to 100	Few or no limitations that restrict use for crops.
2	60 to 80	Suitable for most crops, few special management needs, minor limitations that narrow crop choices.
3	40 to 60	Suitable for few crops or to special crops, requires special management.
4	20 to 40	Severely limited for crops, requires careful management.
5	10 to 20	Not suitable for cultivated crops, can be used for pasture and range.
6	Less than 10	Not suitable for farming.

Source: United States Department of Agriculture, 1973.

The USDA survey found a variety of ten soil types present on the proposed solar energy facility site. These include Imperial silty clay (wet); Imperial-Glenbar silty clay loams (2 to 5 percent slopes); Indio-Vint complex; Meloland very fine sandy loam (wet); Meloland and Holtville loams (wet); Rositas sand (0 to 2 percent slopes); Rositas fine sand (0 to 2 percent slopes); Rositas fine sand (wet, 0 to 2 percent slopes); Vint loamy very fine sand (wet); and, Vint and Indio very fine sandy loams (wet). Figure 3.9-2 depicts the distribution of soil types on the site. Table 3.9-5 provides details on the variety of soils found on the site, along with their Capability Class and Storie Index rating.

The California Farmland Mapping and Monitoring Program (FMMP) maintains a list of these USDA soil types by the County that meet criteria for Prime Farmland Soils and Farmland of Statewide Importance Soils.

TABLE 3.9-5
Soil Suitability

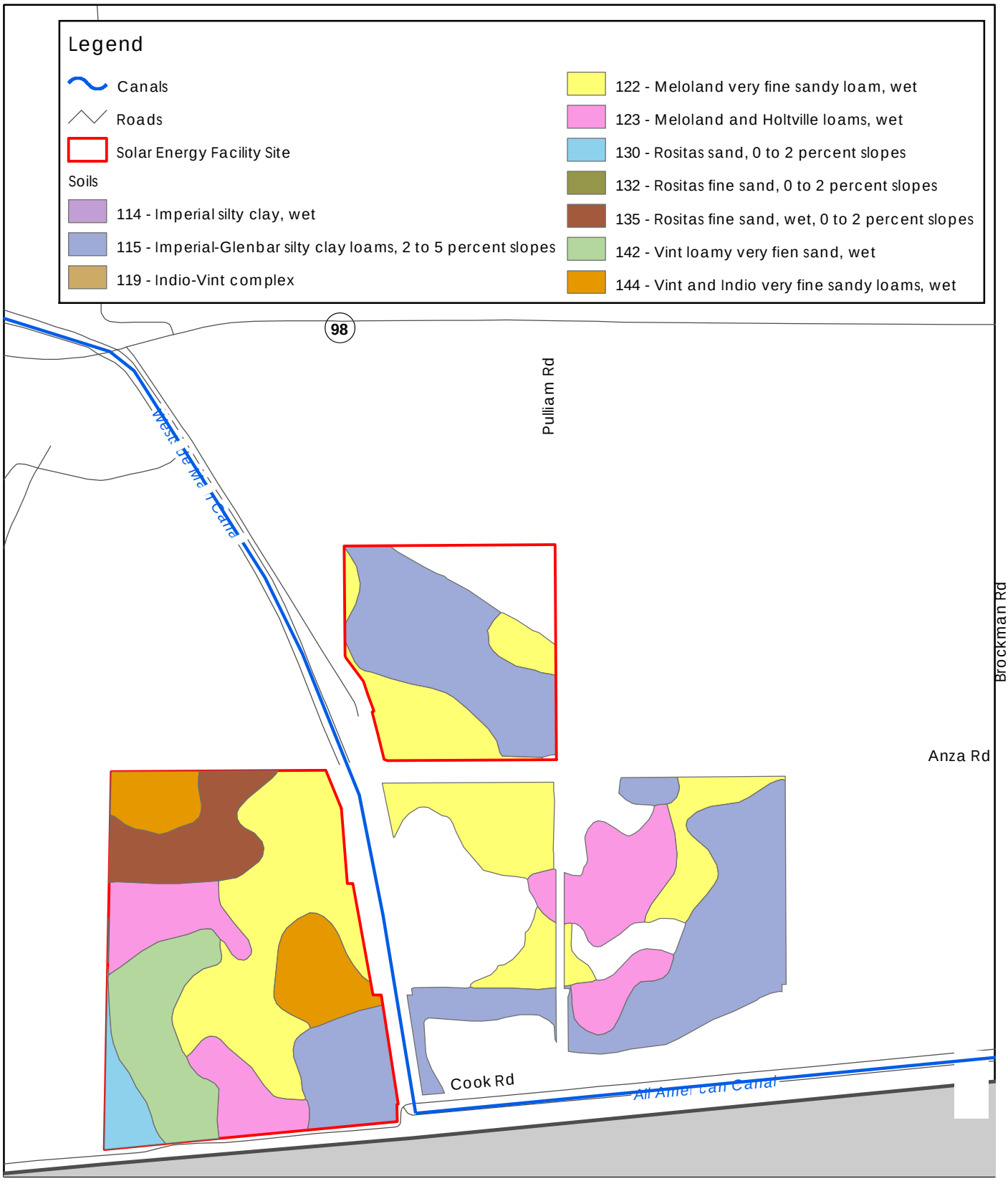
Map Symbol	Mapping Unit	Capability Class	Storie Index Rating
114	Imperial silty clay (wet)	IIIw-6	22
115	Imperial-Glenbar silty clay loams (2 to 5 percent slopes)	IIIw-6	34
119	Indio-Vint complex	IIs-1	90
122	Meloland very fine sandy loam (wet)	IIIw-3	43
123	Meloland and Holtville loams (wet)	IIIw-3	43
130	Rositas sand (0 to 2 percent slopes)	IVs-4	57
132	Rositas fine sand (0 to 2 percent slopes)	IIIs-4	62
135	Rositas fine sand (wet, 0 to 2 percent slopes)	IIIw-4	36
142	Vint loamy very fine sand (wet)	IIw-4	57
144	Vint and Indio very fine sandy loams (wet)	IIw-3	60

Source: United States Department of Agriculture, 1973.

Indio-Vint complex (which comprises 0.87% of the project area), Meloland very fine sandy loam (wet) (24.9%), Meloland and Holtville loams (wet) (11.6%), Vint loamy very fine sand (wet) (11.2%), and Vint and Indio very fine sandy loams (wet) (9.1%) meet the criteria for the Prime Farmland designation. Imperial silty clay (wet) (10.2% of the project area), Imperial-Glenbar silty clay loams (2 to 5% slopes) (26.1%), Rositas sand (0 to 2 percent slopes) (1.5%), Rositas fine sand (0 to 2 percent slopes) (0.008%), and Rositas fine sand (wet, 0 to 2 percent slopes) (4.4%) are considered Farmland of Statewide Importance soils.

G. Williamson Act

The Williamson Act (California Land Conservation Act, California Government Code, Section 51200 et. seq.) is a statewide mechanism for the preservation of agricultural land and open space land. The Act provides a comprehensive method for local governments to protect farmland and open space by allowing lands in agricultural use to be placed under contract (agricultural preserve) between a local government and a land owner. Amendments to the Budget Act of 2009 reduced the Williamson Act subvention payments



SOURCE: U.S. Dept of Agriculture, 2006; BRG Consulting, Inc., 2010

10/12/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Proposed Solar Energy Facility Site Soil Types

FIGURE 3.9-2

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 9\Figure 3.9-2 Proposed Solar Energy Site Soils.mxd

budget to $1,000, essentially suspending the subvention payments to the Counties. However, no portion of the project site, or land within 0.25 miles of the project site, is under a Williamson Act preservation contract.

H. County of Imperial General Plan

Agriculture has been the single most important economic activity of Imperial County throughout its history. The County of Imperial recognizes the area as one of the finest agricultural areas in the world due to several environmental and cultural factors including good soils, a year-round growing season, the availability of adequate water transported from the Colorado River, extensive areas committed to agricultural production, a gently sloping topography, and a climate that is well-suited for growing crops and raising livestock. The Agricultural Element in the County of Imperial General Plan demonstrates the long-term commitment by the County to the full promotion, management, use, and development and protection of agricultural production, while allowing logical, organized growth of urban areas (County of Imperial, 1993).

The County's Agricultural Element identifies several Implementation Programs and Policies for the preservation of agricultural resources. The Agricultural Element recognizes that the County can and should take additional steps to provide further protection for agricultural operations and at the same time provide for logical, organized growth of urban areas. The County must be specific and consistent about which lands will be maintained for the production of food and fiber and for support of the County's economic base. The County's strategy and overall framework for maintaining agriculture includes the following policy directed at the Preservation of Important Farmland:

> The overall economy of Imperial County is expected to be dependent upon the agricultural industry for the foreseeable future. As such, all agricultural land in Imperial County is considered as Important Farmland, as defined by Federal And State agencies, and should be reserved for agricultural uses. Agricultural land may be converted to non-agricultural uses only where a clear and immediate need can be demonstrated, such as requirements for urban housing, commercial facilities, or employment opportunities. All existing agricultural land will be preserved for irrigation agriculture, livestock production, aquaculture, and other agriculture-related uses except for non-agricultural uses identified in this General Plan or in previously adopted City General Plans.

The following program is provided in the Agricultural Element:

> No agricultural land designated except as provided in Exhibit C shall be removed from the Agriculture category except where needed for use by a public agency, for geothermal purposes, where a mapping error may have occurred, or where a clear long term economic benefit to the County can be demonstrated through the planning and environmental review process. The Board (or Planning Commission) shall be required to prepare and make specific findings and circulate same for 60 days (30 days for parcels considered under Exhibit C of this element) before granting final approval of any proposal which removes land from the Agriculture category.

Also, the following policy addresses Development Patterns and Locations on Agricultural Land:

> "Leapfrogging" or "checkerboard" patterns of development have intensified recently and result in significant impacts to the efficient and economic production of adjacent agricultural land. It is a policy of the County that leapfrogging will not be allowed in the future. All new non-agricultural development will be confined to areas identified in this plan for such purposes or in Cities' adopted Spheres of Influence, where new development must adjoin existing urban uses. Non-agricultural residential, commercial, or industrial uses will only be permitted if they adjoin at least one side of an existing urban use, and only if they do not significantly impact the ability to economically and conveniently farm adjacent agricultural land.

Agricultural Element Programs that address "Leapfrogging" or "checkerboard" development include:

> All non-agricultural uses in any land use category shall be analyzed during the subdivision, zoning, and environmental impact review process for their potential impact on the movement of agricultural equipment and products on roads located in the Agriculture category, and for other existing agricultural conditions which might impact the project, such as noise, dust, or odors.
>
> The Planning and Development Services Department shall review all proposed development projects to assure that any new residential or non-agricultural commercial uses located on agriculturally zoned land, except land designated as a Specific Plan Area, be adjoined on at least one entire property line to an area of existing urban uses. Developments which do not meet this criteria should not be approved.

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3.10 Health, Safety and Hazardous Materials/Fire and Fuels Management

3.10.1 Regulatory Framework

3.10.1.1 Federal

Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC 6901 et seq.)
The RCRA gives the Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also sets forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to the RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 6901 et. seq.)
CERCLA provides for the cleanup of sites contaminated by hazardous substances. It authorizes the Federal government to clean up sites using the Hazardous Substances Superfund. Through CERCLA, EPA was given the power to seek out those parties responsible for any release and assure their cooperation in the cleanup. Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies.

Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 (42 USC 11001 et seq.)
The EPCRA was enacted by Congress as the national legislation on community safety. This law is designed to help local communities protect public health, safety, and the environment from chemical hazards. To implement EPCRA, Congress requires each state to appoint a State Emergency Response Commission (SERC). The SERCs are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee (LEPC) for each district.

Hazardous Materials Transport Act – Code of Federal Regulations
Requires that suppliers of hazardous materials prepare and implement security plans in accordance with Department of Transportation (DOT) regulations and ensure that hazardous material drivers comply with personnel background security checks. It also addresses the transportation of natural and other gases by pipeline.

Federal Water Pollution Control Act (Clean Water Act)
Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines.

Clean Air Act
The Clean Air Act (CAA) establishes a nationwide emergency planning and response program, and imposes resporting requirements for businesses that store, handle, or produce significant quantities of

extremely hazardous materials (42 USC Section 7401 et. seq. as amended). It also requires states to implement a comprehensive system to inform local agencies when a significant quantity of such material is stored or handled at the facility (42 USC Section 112(r)). These requirements are reflected in the California Health and Safety Code, Section 25531 et. seq.

Superfund Amendments and Reauthorization Act (SARA)
This contains the Emergency Planning and Community Right to Know Act.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
FIFRA provides for federal regulation of pesticide distribution, sale, and use. All pesticides distributed or sold in the United States must be registered by EPA.

Occupational Safety and Health Act (OSHA)
Congress passed OSHA to assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health.

Federal Regulation 49 FAR Part 77
Federal Regulation 49 FAR Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the construction or alteration on operating procedures;
- Determining the potential hazardous effect of the proposed construction on air navigation;
- Identifying mitigating measures to enhance safe air navigation; and,
- Charting of new projects.

Notification allows the Federal Aviation Administration (FAA) to identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces on and around airports through which no object should penetrate. These surfaces include the primary approach and transitional, horizontal, and conical surfaces. Criteria utilized in determining the shape, size, and position of the various surfaces are outlined in the federal regulations. Projects anticipated to obstruct navigable airspace would be subject to review associated with Part 77.

3.10.1.2 State

California Environmental Protection Agency
The California Environmental Protection Agency (Cal EPA) and the State Water Resources Control Board establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of hazardous Substances Act
- Porter-Cologne Water Quality Control Act

Department of Toxic Substances Control

Within Cal EPA, the Department of Toxic Substances Control has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL).

California's Secretary of Environmental Protection has established a unified hazardous waste and hazardous materials management regulatory program as required by statute (Health and Safety Code Chapter 6.11). The unified program consolidates, coordinates, and makes consistent portions of the following six existing programs:

- Hazardous Waste Generations and Hazardous Waste On-site Treatment
- Underground Storage Tanks
- Hazardous Material Release Response Plans and Inventories
- California Accidental Release Prevention Program
- Aboveground Storage Tanks (spill control and countermeasure plan only)
- Uniform Fire Code Hazardous Material Management Plans and Inventories

The statute requires all counties to apply to the Cal EPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local Certified Unified Program Agency (CUPA) is required to consolidate, coordinate, and make consistent the administrative requirements, permits, fee structures, and inspection and enforcement activities for these six program elements within the county. Most CUPAs have been established as a function of a local environmental health or fire department.

The Office of the State Fire Marshal participates in all levels of the CUPA program including regulatory oversight, CUPA certifications, evaluations of the approved CUPAs, training, and education. DTSC serves as the CUPA in Imperial County.

California Division of Aeronautics

The California Division of Aeronautics fosters and promotes the development of a safe, efficient, dependable, and environmentally compatible air transportation system. The division issues permits for and

annually inspects hospital heliports and public-use airports, makes recommendations regarding proposed school sites within 2 miles of an airport runway, and authorizes helicopter landing sites at or near schools. Aviation system planning provides for the integration of aviation into transportation system planning on a regional, statewide, and national basis. The Division of Aeronautics administers noise regulations and land use planning laws that foster compatible land use around airports and encourages environmental mitigation measures to lessen noise, air pollution, and other impacts caused by aviation. The division prohibits the construction of any structure that would penetrate an imaginary surface, unless the California Division of Aeronautics has first issued a permit allowing its construction.

California Highway Patrol (CHP)

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by state regulations; or,
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping in greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, California Code of Regulations, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, California Code of Regulations, Chapter 6, Article 2.5, Sections 1157-1157.8). Radioactive materials are restricted to specific safe routes for transportation of such materials.

California Emergency Response Plan

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the State Office of Emergency Services (OES), which coordinates the responses of other agencies including Cal-EPA, the CHP, the California Department of Fish and Game (CDFG), the Regional Water Quality Control Board (RWQCB), Imperial County Sheriff's Department, Imperial County Fire Department, and the City of Imperial Police Department.

California Safe Drinking Water and Toxic Enforcement Act

The Health and Welfare Agency has authority over the Safe Drinking Water and Toxic Enforcement Act. This act prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.

3.10.1.3 Local

County of Imperial General Plan

The County of Imperial General Plan Seismic and Public Safety Element contains an implementation program to reduce the threat of seismic and public safety hazards within the unincorporated areas of the County. Implementation programs and policies are divided into three major topics: Seismic/Geological Hazards; Flood Hazards; and, Imperial Irrigation District Lifelines.

The Seismic and Public Safety Element also contains a set of goals and objectives for land use planning and safety, emergency preparedness, and the control of hazardous materials. The goals and objectives, together with the implementation programs and policies, are the statements that will provide direction for private development.

The County of Imperial General Plan contains specific policies related to geology, soils, and seismicity. Table 3.10-1 analyzes the consistency of the project with the applicable policies relating to seismic hazards and public safety in the County of Imperial General Plan.

While this EIR/EA analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 151250, the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Imperial County Office of Emergency Services – Emergency Operations Plan

The Imperial County Fire Department (ICFD) is the local Office of Emergency Services in Imperial County. The OES Coordinator is the County Fire Chief, who is assisted by an Assistant OES Coordinator who maintains the OES program for the County of Imperial. ICFD acts as the lead agency for the Imperial County Operational Area (OA) and provides leadership in all phases of developing the emergency management organization, including public education, training, EOC operations, interagency coordination, and plan development (Imperial County OES, 2007).

The Imperial County Operational Area Emergency Operations Plan (EOP) provides a comprehensive, single source of guidance and procedures for the County to prepare for and respond to significant or catastrophic natural, environmental, or conflict-related risks that produce situations requiring coordinated response. It further provides guidance regarding management concepts relating to response and abatement of various emergency situations, identifies organizational structures and relationships, and describes responsibilities and functions necessary to protect life and property. The EOP is consistent with the requirements of the Standardized Emergency Management System (SEMS) as defined in Government Code Section 8607(a) and the U.S. Department of Homeland Security National Incident Management System (NIMS) for managing response to multi-agency and multi-jurisdictional emergencies. SEMS/NIMS incorporates the use of the Incident Command System (ICS), mutual aid, the operational area concept, and multi/interagency coordination (Imperial County OES, 2007).

TABLE 3.10-1
Project Consistency with Applicable General Plan Seismic and Public Safety Policies

General Plan Policies	Consistency with General Plan	Analysis
Seismic and Public Safety Element		
1) Implement codified ordinances and procedures which require the review and restriction of land use due to possible natural hazards.	Yes	Division 15 of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy which are located across the trace of an active fault are prohibited. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are demonstrated through a geotechnical analysis and report not to expose a person to undue hazard created by the construction. A geotechnical report has been prepared by Landmark Consultants for the Proposed Action. The report's recommended measures to mitigate potential geologic or seismic hazards have been incorporated into this EIR/EA.
3) Implement the geologic hazards section of the County's Codified Ordinances pursuant to the requirements of the Alquist-Priolo Geologic Hazards Zone Act.	Yes	See response for Policy 1, above.
4) Ensure that no structure for human occupancy, other than one-story wood frame structures, shall be permitted within fifty feet of an active fault trace as designated on maps compiled by the State Geologist under the Alquist-Priolo Geologist Hazards Zone Act.	Yes	See response for Policy 1, above.
8) Support the safety awareness efforts of the Office of Emergency Services of Imperial County and other agencies through public information and educational activities.	Yes	See response for Policy 1, above.
9) Continue to implement the Alquist-Priolo requirements in designated special study zones in the Imperial County Ordinance.	Yes	See response for Policy 1, above.

Source: County of Imperial General Plan, Seismic and Public Safety Element, 1993.

Imperial County-Mexicali Emergency Response Plan

The Environmental Protection Agency's U.S.-Mexico Environmental Program (Border 2012) is a collaboration between the United States and Mexico to improve the environment and protect the health of people living

along the border. The bi-national program focuses on cleaning the air, providing safe drinking water, reducing the risk of exposure to hazardous waste, and ensuring emergency preparedness along the U.S.-Mexico border. According to the EPA, rapid economic and population growth along the U.S.-Mexico border has increased the potential for hazardous waste releases and emergencies. In addition, terrorism is a growing concern for both the United States and Mexico. The ability to plan and prepare bi-nationally improves the probability of adequately responding to incidents and protecting the environment and public from exposure to harmful contaminants and possible serious environmental or health impacts. The Imperial County-Mexicali Emergency Response Plan is intended to streamline emergency response, notification and communication efforts. The plan also guarantees cooperation among all levels of emergency response personnel. Along with reducing risks associated with hazardous materials, the plan calls for necessary training, a crucial element in emergency response (U.S. EPA, 2008).

3.10.2 Affected Environment

Information contained in this section is summarized from the *Phase I Environmental Site Assessment, 920-Acre Imperial Valley South Property, Imperial County, California* prepared by Tetra Tech, Inc. (February 2010). This document is provided on the attached CD of Technical Appendices as Appendix G of this EIR/EA.

3.10.2.1 Project Location

The site of the proposed solar energy facility is located on 946.6 gross acres of privately-owned, undeveloped and agricultural lands. The site is located in the unincorporated Mt. Signal area of the County of Imperial, approximately 8.8 miles west of the City of Calexico. The proposed transmission lines would be located within BLM's Utility Corridor "N" and would extend from the solar facility site to the Imperial Valley Substation. The dirt access road is located along the west side of the Westside Main Canal, and traverses BLM lands and private lands.

3.10.2.2 Hazardous Materials Defined

Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes, both of which are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and, (4) reactivity (CCR Title 22, Chapter 11, Article 3). A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> ...A substance or combination of substances which because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or, (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (California Code of Regulations, Title 22, Section 66260.10).

Chemical and physical properties that cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity, are defined in the CCR, Title 22, Sections 66261.20 through 66261.24. Factors that influence the health effects of exposure to hazardous materials

include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

3.10.2.3 Environmental Site Assessment

The purpose of the Phase I Environmental Site Assessment (Phase I ESA) prepared for the Proposed Action was to determine if any recognized or potential environmental conditions are present on the solar energy facility site. The American Society for Testing and Materials (ASTM) defines "recognized environmental conditions" as "any hazardous substance or petroleum product under conditions that indicate an existing, past, or material threat of release into the structures, ground, groundwater, or surface water at the subject site."

The Phase I ESA includes results of a site reconnaissance to identify current conditions of the solar energy facility site and adjoining properties, a review of various readily available federal, state, and local government agency records, and review of available historical site and site vicinity information. No recognized environmental conditions were found on the solar energy facility site as part of the Phase I ESA site reconnaissance.

Research conducted indicates that the proposed solar energy facility site has been in agricultural use from the late 1940's to present. Currently, the site is used for growing alfalfa, Bermuda grass, and Klein grass. The site also contains access roads and active and inactive irrigation ditches that are associated with past and current agricultural use of the site. The proposed transmission line corridor is located on undeveloped desert lands. The proposed access road is currently a dirt road. Adjacent uses include desert lands, agricultural, and the Westside Main Canal.

A. Background Review

A review of historic topographic, aerial photographs, historic Sanborn Fire Insurance maps, and City directory listings was performed to evaluate potentially adverse environmental conditions resulting from previous ownership and uses of the site. Additionally, state and federal regulatory lists containing information regarding hazardous materials on or within a 1-mile radius of the project site were reviewed. Results from the background review are presented in the Phase I ESA prepared by Tetra Tech, Inc. (Appendix G).

B. Site Reconnaissance

A site reconnaissance was performed on February 1, 2010. The reconnaissance included observations of the site and observation of adjoining properties. The site was observed for the presence of surface staining and/or stressed vegetation; drums, aboveground storage tanks, and containers; evidence of waste disposal; fill material; transformers; vents, air stacks, and odors; underground storage tanks; wells; alterations in vegetation; pits, ponds, and lagoons; and presence of pesticides.

3.10.2.4 Hazardous Materials

A. Surface Staining and/or Stressed Vegetation

No surface staining or stressed vegetation was observed during the site reconnaissance as reported in the Phase I ESA.

B. Drums, Aboveground Storage Tanks, and Containers

No drums, aboveground storage tanks (ASTs), or containers were observed during the site reconnaissance.

C. Underground Storage Tanks

No evidence of underground storage tanks (USTs) was observed on the site.

D. Trash and Debris

Miscellaneous trash and debris was observed throughout the proposed solar facility site. Plastic, glass, and paper trash was observed in the western boundary and along access roads in the western portion of the site. Discarded debris believed to be associated with repairs to onsite irrigation ditches, including concrete piping, lumber, and other materials were observed along the ditches throughout the western portion of the site. Several tires were observed near the center of the northern boundary of the western portion of the site. No potentially hazardous substances were observed among the refuse and tires, and no evidence of significant onsite dumping was observed.

E. Fill Material

Gravel fill material was observed along access roads and irrigation ditches located throughout the solar energy facility site.

F. Transformers

Neither pad- nor pole-mounted transformers were observed on the site.

G. Vents, Air Stacks, and Odors

No vents or air stacks were observed and no odors were detected on the site during the site reconnaissance.

H. Groundwater and Wells

No evidence of groundwater or oil and gas wells was observed on the site during the site reconnaissance.

I. Alterations in Vegetation

The northern, central, south-central, and eastern portions of the solar energy facility site contain cultivated alfalfa, Bermuda grass, and Klein grass crops. No evidence of recent alterations in vegetation was observed during the site reconnaissance. With the exception of mature trees located along access roads observed during the reconnaissance, the project site appears to have been cleared of naturally-occurring vegetation prior to development for current agricultural uses.

J. Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were observed on the site during the site reconnaissance.

K. Pesticides and Herbicides

The solar energy facility site is currently and was recently used for agricultural purposes, and as such contamination from pesticides and herbicides is a potential hazard. Interviews with the current property owners of the solar facility site state that commercially available herbicides, pesticides, and fertilizers have been applied to the crops and associated fields.

3.10.2.5 Environmental Database Search

Based on a review of the Environmental Data Report (EDR) prepared for the project site, no sites were found within the requested search radii. The databases that were reviewed include federal, state, and local environmental records pertaining to the solar energy facility site and vicinity.

Thirty-eight orphan sites (sites with inadequate address information to be mapped by EDR) were identified. Tetra Tech, Inc. evaluated all 38 of the orphan sites individually and none of the orphan sites was identified within American Society of Testing and Materials (ASTM) standard search distances of the solar energy facility site. All 38 of the orphan sites appear to be located over two miles from the site. In addition, the site is not listed in any of the databases inquired.

3.10.2.6 Airport Land Use Compatibility Plan

The site is not located within an airport land use plan or within two miles of a public airport. No private airstrips are located in the vicinity of the site. The site is located approximately six miles south of the nearest airport: Naval Air Facility, El Centro; however, no portion of the project site (solar energy facility site, transmission line corridor, or access road) is located within the limits of the adopted Airport Land Use Compatibility Plan (ALUCP) for Naval Air Facility, El Centro (County of Imperial, ALUCP, 1996).

A new transmission line and associated towers, with a maximum height of 140 feet, is required to connect the proposed solar energy facility to the electric grid at the Imperial Valley substation, located approximately five miles northwest of the solar energy facility. The proposed transmission line and towers would be placed adjacent to the two existing 230 kV transmission lines. These lines are located within BLM lands and specifically within designated Utility Corridor "N" of the CDCA.

Also, the Proposed Action would involve the installation and use of 140-foot transmission towers within the solar energy facility site (located on private lands under the jurisdiction of the County of Imperial). Sections 90508.07 (C) and 90509.07 (C) of the County of Imperial's Land Use Ordinance limits the height of structures within the A-3 and A-2-R zones. Specifically, these sections state, "Non-Residential structures and commercial communication towers shall not exceed one hundred (120) feet in height, and shall meet ALUC Plan requirements." As such, the proposed transmission towers would exceed the 120-foot height limit for the solar energy facility site and a variance approval from the County of Imperial would be required for the height exceedance.

On June 16, 2010, the Airport Land Use Commission reviewed the proposed application, including the proposed variance for the transmission tower height, and determined that the Proposed Action would be consistent with the ALUCP. Furthermore, according to the NOP response letter from United States Marine Corps dated June 23, 2010, the site is located outside any military low-level training routes.

3.10.2.7 Emergency Plans

The County of Imperial has adopted the "Imperial County Emergency Plan," which addresses the County's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. The plan does not apply to normal day-to-day emergencies and routine procedures used in coping with such emergencies. The County's plan identifies certain open space areas and public buildings to serve as emergency shelters when residents must be relocated. No portion of the Proposed Action site is designated as an emergency shelter area.

3.10.2.8 Fire Hazard

The potential for a major fire in the unincorporated areas of the County is generally low. According to the Imperial County Natural Hazard Disclosure (Fire) Map prepared by the California Department of Forestry and Fire Protection (2000) (http://www/fire.ca.gov/ab6/mhd/3.pdf), no portion of the project site is located in an area characterized as either: (1) a wildland area that may contain substantial forest fire risk and hazard; or (2) very high fire hazard severity zone.

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3.11 Hydrology and Water Quality

3.11.1 Regulatory Framework

3.11.1.1 Federal

Clean Water Act

The Clean Water Act (CWA) provides a structure for regulating discharges into the waters of the U.S. The Environmental Protection Agency (EPA) is given the authority to implement pollution control programs.

Section 401 of the CWA requires that any activity which may result in a discharge into waters of the U.S. must be certified by the California State Water Resources Control Board ((SWRCB) as administered by the Regional Water Quality Control Boards (RWQCB). This certification ensures that the Proposed Action does not violate State and/or Federal water quality standards. The site for the Proposed Action is within the jurisdiction of the Colorado River RWQCB.

Section 404 of the CWA regulates the discharge of dredged, excavated, or fill materials in wetlands, streams, rivers, and other U.S. waters. The United States Army Corps of Engineers (ACOE) is the federal agency authorized to issue 404 Permits for certain activities conducted in wetlands or other U.S. waters. Section 404 Permits are not granted without prior 401 certification.

Section 303(d) of the CWA requires states, territories and authorized tribes to develop a list of water quality limited segments. The waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish a priority ranking for water on the lists and develop action plans to improve water quality.

The CWA established the National Pollutant Discharge Elimination System (NPDES), which requires permits for discharges of pollutants from certain point sources into waters of the United States. The CWA allows the EPA to delegate NPDES permitting authority to states with approved environmental regulatory programs. California is one of the delegated states. The NPDES permit applicable to this project is the General Construction Stormwater Permit.

Federal Emergency Management Agency

Imperial County is a participant in the National Flood Insurance Program (NFIP), a federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted, as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of one in 100 years, although such a flood may occur in

any given year. Imperial County is occasionally audited by the Department of Water Resources (DWR) to ensure the proper implementation of FEMA floodplain management regulations.

3.11.1.2 State

The Porter-Cologne Water Quality Control Act

The Porter-Cologne Act grants the SWRCB and the RWQCBs power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the federal Clean Water Act. Any person proposing a discharge waste within any region must file a report of waste discharge within the appropriate board.

General Construction Stormwater Permit

Pursuant to Section 402(p)(4) of the CWA, EPA promulgated regulations for NPDES permit applications for stormwater discharges. On November 16, 1990, the EPA published final regulations that establish stormwater to waters of the United States from construction projects that encompass one (1) or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. State Water Resources Control Board (SWRCB) Order No. 2009-0009, NPDES General Permit No. CAS000002," General Permit for Stormwater Discharges Associated with Construction Activity", is the active general stormwater construction activity permit for the State of California and RWQCB.

This permit was modified and reissued on August 19,1999 based on a court challenge by the San Francisco, Santa Monica, San Diego, and Orange Coast Bay Keepers groups. The Court issued a judgment and directed the SWRCB to modify the provisions of the General Permit to, among others, require permits to implement specific sampling and analytical procedures to determine whether Best Management Practices (BMPs) implemented on the construction site are: 1) preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired for sediment or silt; and 2) preventing other pollutants, that are known or should be known by permitees to occur on construction sites and that are not visually detectable in stormwater discharges, from causing or contributing to exceedances for water quality objectives. Based on the Court's direction, the two areas of the permit that were modified were the Stormwater Pollution Prevention Plan (SWPPP) and the Monitoring Program and Reporting Requirements portions of the permit.

The CRB RWQCB administers the NPDES permit program regulating storm water from construction activities for projects greater than one acre in size in the project site. In order to be in compliance with the Permit, all projects involving one acre or more of soil disturbance require a General Construction Stormwater Permit, which includes the following:

- Notices of Intent (NOIs) – Certification to be signed by owner of the construction site.
- Stormwater Pollution Prevention Plans (SWPPPs). Required elements of SWPPP include: 1) Site description addressing the elements and characteristics specific to the site; 2) Description of BMPs for erosion and sediment controls; 3) BMPs for construction waste handling and disposal; (4) Implementation of approved local plans; (5) Proposed post-construction controls, including

description of local post-construction erosion and sediment control requirements; (6) Non-storm water management; (7) Identify a sampling and analysis strategy and sampling schedule for discharges from construction activity which discharge into water bodies listed on the 303 (d) List of Water Quality Limited Segments; and 8) For all construction activity, identify a sampling and analysis strategy and sampling schedule for pollutants which are not visually detectable in stormwater discharges, which are known to occur on the construction site, and which could cause or contribute to an exceedance of water quality objectives in receiving waters.

- Monitoring Program and Reporting Requirements – Including inspection of prevention measures record keeping and annual certification of compliance, due July 1, 1993, and each July 1st thereafter. Dischargers of stormwater associated with construction activity that directly enters a water body listed on the 303 (d) List of Water Quality Limited Segments shall conduct a sampling and analysis program for the pollutants causing the impairment. Discharges that flow through tributaries that are not listed on the 303(d) List of Water Quality Limited Segments or that flow into MS4 are not subject to these sampling and analysis requirements.

3.11.1.3 Local

County of Imperial General Plan

Due to the economic, biological, and agricultural significance water plays in the Imperial County, the Water Element and the Conservation and Open Space Element of the General Plan contain policies and programs, created to ensure water resources are preserved and protected. Table 3.11-1 identifies General Plan policies and programs for water quality and flood hazards that are relevant to the Proposed Action and summarizes the project's consistency with the General Plan. While this EIR/EA analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

County of Imperial Land Use Ordinance, Title 9.

- *Division 10:* Regulates and controls the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and/or structures within the unincorporated areas of the County.
- *Division 22:* This Ordinance is intended to preserve, protect and manage the groundwater within the County.

Imperial Irrigation District Regulation

The Imperial Irrigation District (IID) delivers water to over 450,000 acres of highly productive farmland in southernmost Southern California. Established by a vote of the people in 1911, IID is the nation's largest irrigation district and serves one of the fastest-growing regions in the West. The IID was formed to acquire properties of the bankrupt California Development Company and its Mexican subsidiary. By 1922, the IID had acquired 13 mutual water companies, which had developed and operated distribution canals in the

Imperial Valley. By the mid-1920s, the IID was delivering water to nearly 500,000 acres. Since 1942, water has been diverted at Imperial Dam on the Colorado River through the All-American Canal, all of which the IID operates and maintains. Today, the IID serves irrigation water and electric power to farmers and residents in the lower southeastern portion of California's desert (IID, 2008).

TABLE 3.11-1
Project Consistency with Applicable General Plan Flood Hazard and Water Quality Policies

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element		
1) Structural development normally shall be prohibited in the designated floodways. Only structures which comply with specific development standards should be permitted in the floodplain.	Yes	The Proposed Action does not contain a residential component nor would it place housing within a 100-year flood hazard area.
Water Element		
1) The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.	Yes	A drainage and water quality report has been prepared by Tory R. Walker Engineering for the Proposed Action. These reports have been referenced in this environmental document, and the report's recommended measures to mitigate water quality impacts have been incorporated into this EIR/EA.
2) All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity, and shall be required to implement appropriate mitigation measures for any significant impacts.	Yes	See response for Water Element Policy 1) above.

Source: County of Imperial General Plan Conservation and Open Space Element, 1993.
County of Imperial General Plan Water Element,1993.

The Colorado River is the lifeline of the Imperial Valley. Its course runs a 1,400-mile distance and its watershed covers 157 million acres of land. The river produces approximately 14 million acre-feet of water per year. One acre-foot is equal to 325,900 gallons—enough to sustain the water needs of a family of five for one year. The river is highly saline and carries approximately one ton of salt per acre-foot of water applied to fields, posing problems for growers. Imperial Valley farmers battle salinity by leaching salts

through the root zone into subsurface tile drainage systems. This saline water is then carried through the district's drainage canals into the Salton Sea. To date, there are 230 miles of main canals, 1,428 miles of canals and laterals of which 1,109 miles are concrete-lined or pipe-lined, and 1,406 miles of drainage ditches in the Imperial Valley. The Colorado River is also an extremely silty river. Six desilting basins remove silt from the water at the Imperial Dam before it is diverted into the All-American Canal.

Adequate drainage in the Imperial Valley makes the difference between barren land and highly productive soil. The IID maintains regulation over the drainage of water to their canals, including the design requirements of stormwater retention basins. Retention basins are intended to retain water from major stormwater events. The IID requires that retention basins be sized to handle an entire rainfall event in case the IID system is at capacity. Additionally, the IID requires that outlets to IID facilities be no larger than 12 inches in diameter and must contain a backflow prevention device (IID, 2008).

3.11.2 Affected Environment

Information contained in this section is summarized from: 1) *Preliminary CEQA Level Drainage Study for Imperial Valley South Solar Farm* prepared by Tory R. Walker Engineering, Inc. (June 25, 2010, revised October 4, 2010); and, 2) *Preliminary Water Quality Report for Imperial Valley South Solar Farm* prepared by Tory R. Walker Engineering, Inc. (June 25, 2010, revised October 4, 2010). These documents are provided on the attached CD of Technical Appendices as Appendix H-1 and Appendix H-2 of this EIR/EA.

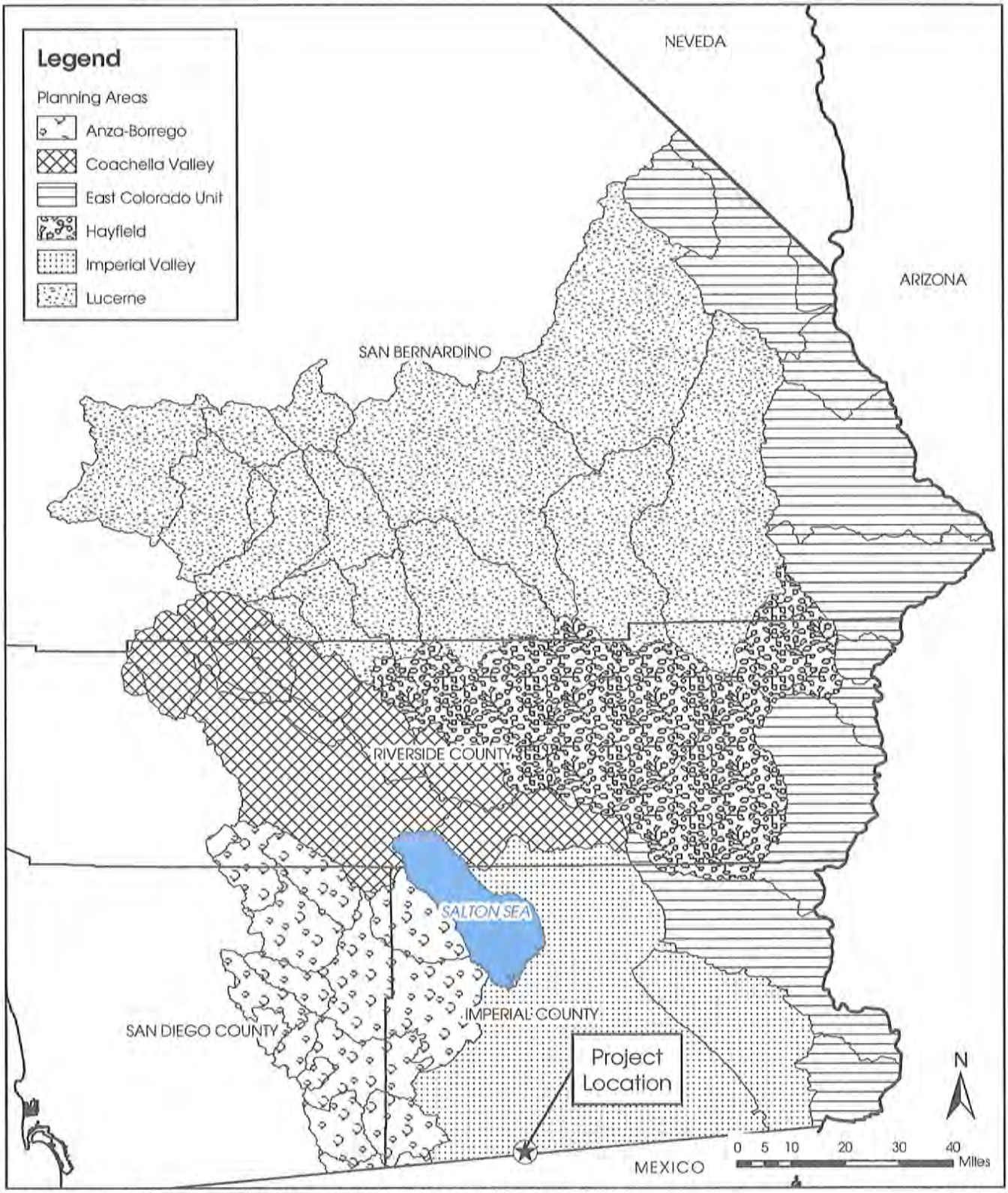
3.11.2.1 Hydrologic Setting

The Proposed Action is located within the Colorado River Basin (CRB) Regional Water Quality Control Board (RWQCB), Region 7. The CRB contains 63 major drainage basins and is over 13 million acres in size. The CRB encompasses all of Imperial County and parts of Riverside, San Bernardino and San Diego Counties.

The CRB has been organized into six different planning areas; the Imperial Valley Planning Area, Anza-Borrego Planning Area, Coachella Valley Planning Area, Hayfield Planning Area, East Colorado River Planning Area, and Lucerne Planning Area. Figure 3.11-1 depicts the general location, and the configuration of these planning areas.

The Proposed Action site lies within the Imperial Valley Planning Area, an area that covers 2,500 square miles in the southern portion of the CRB region, almost all of it in Imperial County. The Imperial Valley Planning Area's northern boundary is along the Salton Sea and the Coachella Valley Planning Area. The easterly and westerly boundaries are contiguous with the westerly and easterly boundaries of the East Colorado River Basin and the Anza-Borrego Planning Area respectively. Its southerly boundary is along the International Border with Mexico. The Planning Area contains the cities of El Centro, Brawley, and Calexico. The Planning Area drains mostly toward the Salton Sea and is drained by the New and Alamo Rivers (RWQCB, 2005).

The site is located in the Brawley Hydrologic Area (Basin Number 723.10) within the Imperial Hydrologic Unit and an undefined Hydrologic Sub-area. The surface and groundwater receiving waters located in the



SOURCE: Teale Data Center, 2004; ESRI, 2010; BRG Consulting, Inc., 2010

8/24/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Colorado River Basin Planning Area

FIGURE 3.11-1

F:\projects\1009 Imperial Solar South\1st Screencheck EIR_EA\Chapter 3\Section 11\Figure 3.11-1 CO River Basin.mxd

area and downstream of the solar energy facility include the Westside Canal, local drainage and irrigation ditches east of the Westside Canal, the New River, and the Salton Sea.

3.11.2.2 Existing Hydrology/Drainage

All watersheds within the Imperial Valley drain into the Salton Sea, a closed water body located at an elevation of 270 feet below sea level. The Valley is within the Salton Trough, which is a depression that has its high point on the Colorado River Delta, in Mexico, at an elevation of 47 feet above sea level, and at its lowest point at –275 feet below sea level near the Riverside County Line. The lowest elevational area is the bed of the ancient Lake Cahuilla that existed about 600 years ago when the Colorado River probably flowed inland. The main sources of inflows into the Salton Sea are from the New and Alamo Rivers that flow from the Colorado River delta through the irrigated fields of the Valley and into the Salton Sea. The New and Alamo rivers also convey surface runoff and lesser amounts of treated municipal and industrial wastewaters from the Imperial Valley. The total watershed area draining into the Salton Sea covers 8,360 square miles (RWQCB, 2005).

A. On-Site Drainage

The existing land use for the solar energy facility site is irrigated agricultural land. Existing land coverage consists of agricultural cropland, with flat slopes. The existing drainage patterns at the solar energy facility site indicates that onsite storm runoff ponds in many location. The site topography indicates a generally flat slope, ranging from 0.2% to 0.4% in the agricultural fields. Fields on both the east and west sides of the Westside Main Canal generally drain to the northeast. The overall site topography slopes generally northeasterly from the southwest corner, with the canal dividing the site. Existing irrigation ditches and culverts around the perimeter of many of the fields also convey runoff. The fields are currently used for agriculture and the existing drainage facilities are operational. The runoff from many of the fields will pond at the low points and drain to downstream IID facilities. In addition, there is an onsite system comprised of perforated tile drains that may convey flows to the IID drain system. These drains include the Mt. Signal Drain #3 and #4, the Carpenter Drain #1, and the Greeson Drain.

B. Offsite Drainage

An offsite tributary drainage area of approximately 1,450 acres is located west of the solar energy facility site, with approximately 1,100 acres directed to the southwest corner of the site and 350 acres to the northwest corner.

3.11.2.3 Existing Flooding

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, the solar energy facility site is located in Zone X, which is an area determined to be outside of the 0.2% annual chance floodplain. In addition, the project does not propose the placement of housing or structures within a 100-year flood hazard area.

The climate of the Imperial Valley is arid, with hot summers and mild winters. Imperial Valley has temperatures ranging from lows in the mid 30's in January to highs of 110 or higher in July and August, with little moisture. The average annual precipitation is 2.92 inches (County of Imperial, 2006).

3.11.2.4 Existing Water Quality

A. Water Quality Control Plan for the Colorado River Basin Region (Region 7)

The federal Clean Water Act and the California Porter-Cologne Water Quality Control Act require that Water Quality Control Plans (more commonly referred to as Basin Plans) be prepared for the nine state-designated hydrologic basins in California. Each of the nine regional boards in California is required to adopt a Basin Plan. The Basin Plan serves to guide and coordinates the management of water quality within the region. According to the Basin Plan, "the intent of the Basin Plan is to provide definitive guidelines, and give direction to the full scope of Regional Board activities that serve to optimize the beneficial uses of the state waters within the Colorado River Basin Region of California by preserving and protecting the quality of these waters." Specifically the Basin Plan: (1) designates beneficial uses for inland surface waters, reservoirs and lakes, and ground water; (2) sets both numerical and non-numerical (narrative) water quality objectives that must be attained or maintained to protect the designated beneficial uses; (3) describes implementation programs to protect the beneficial uses of all waters in the Region; and, (4) describes surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan. The Basin Plan incorporates by reference all applicable State and Regional Board plans and policies.

Under Section 303 (d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of water quality limited segments. The waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish a priority ranking for water on the lists and develop action plans to improve water quality. The impaired waterbodies listed on the 303(d) list for Hydrologic Area (728) are the Imperial Valley Drains, New River and the Salton Sea. However, the solar energy facility site does not flow to a drain included on the 303(d) listing of Imperial Valley Drains. As such, no drain listings and 303(d) impairments are provided for Imperial Valley Drains on Table 3.11-2. Table 3.11-2 summarizes project receiving waters listed on the 303 (d) list and their relative impairments.

TABLE 3.11-2
Project Receiving Waters 303(d)

RECEIVING WATER	HYDROLOGIC UNIT CODE	303 (d) IMPAIRMENT(S)
New River	728.00	1,2,4-Trimethylbenzene, Chlordane, Chloroform, Chlorpyrifos, Copper, DDT, Diazinon, Dieldrin, Mercury, Meta-para xylenes, Nutrients, Organic Enrichment/Low Dissolved Oxygen, o-Xylenes, PCBs, p-Cymene, DCB, Pesticides, Selenium, Toluene, Toxaphene, Toxicity, and Trash
Salton Sea	728.00	Nutrients, Salinity, Selenium

Source: RWQCB, Inc., 2006

The project is approximately less than 100 yards to the Mt. Signal Drain #3 and #4, less than 100 yards to the Carpenter Drain #1, three miles to the Greeson Drain, seven miles to the New River, and 52 miles to the Salton Sea.

B. Beneficial Uses

Beneficial uses of surface water and groundwater have been established for surface and ground waters in the region. According to the RWQCB Basin Plan:

- Beneficial uses are defined as the uses of water necessary for the survival or well being of man, plants and wildlife. The uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind.
- Examples include the drinking, swimming, industrial, and agricultural water supply, and the support of fresh and saline aquatic habitats. According to the Basin Plan, beneficial uses have been designated for specific coastal water bodies, inland surface waters, and groundwater.

In 1972, the State Water Quality Control Board (SWQCB) adopted a uniform list and description of beneficial uses to be applied throughout all hydrological basins of the State.

According to Table 3.11-3 (from Table 2-3 of the Water Quality Control Plan for the Colorado River Basin Region), the beneficial uses of the area west of the Mt. Signal Drain #3 and #4 and the Carpenter Drain #1 (all considered part of the IID drains), the Greeson Drain, the New River, and the Salton Sea are:

IND- Industrial Service Supply: Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.

FRSH-Freshwater Replenishment: Includes uses of water for natural or artificial maintenance of surface water quantity or quality.

REC1- Water Contact Recreation: Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing and use of natural hot spring.

REC2- Non-Contact Water Recreation: Includes uses of water for recreational activities involving proximity to water, but not formally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

WARM- Warm Freshwater Habitat: Includes uses of water that support warm ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

WILD- Wildlife Habitat: Includes uses of water that support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

RARE- Preservation of Rare, Threatened, or Endangered Species: Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

AQUA- Aquaculture: Includes the uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

TABLE 3.11-3
Beneficial Uses

Ground Waters	Hydraulic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN	AQUA
Imperial Valley Drains	723.10						X		X	X		X		X	X		
New River	723.10			X			X		X	X		X		X	X		
Salton Sea	728.0			X					X	X		X		X	X		X

Source: Tory R. Walker Engineering, Inc., 2010.

C. Water Quality Objectives

Like the designation of beneficial uses, the designation of water quality objectives must satisfy all of the applicable requirements of the California Water Code, Division 7 (Porter-Cologne Act). The Clean Water Act, California Water Code, Section 13241 provides that each RWQCB shall establish water quality objectives for the waters of the state (i.e., surface and ground water) which, in the Regional Board's judgment, are necessary for the reasonable protection of beneficial uses and for the prevention of nuisance. The Clean Water Act Section 303 requires that the State adopt water quality objectives (called water quality criteria) for surface waters.

D. 303(d) List of Water Quality Limited Segments

The RWQCBs identify water quality objectives in order to protect the designated beneficial uses of the water bodies. Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, *et seq*, at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits. Waters that do not meet the water quality standards are referred to as "impaired" water bodies. States are required to compile this information in a list and submit the list to the United States Environmental Protection Agency (USEPA) for review and approval. This list is known as the Section 303(d) List of Water Quality Limited Segments. As part of the listing process, States are required to prioritize water/watersheds for future development of total maximum daily load (TMDL). The TMDL establishes the allowable pollutant loadings or other quantifiable parameters for a water body and provides the basis for the State to establish water quality based controls. The purpose of TMDLs is to ensure that beneficial uses of the water body are restored and that the water quality objectives are achieved. On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments.

The New River and the Salton Sea are listed as impaired waterbodies on the 2006 303(d) list. The New River has 303(d) impairments for 1,2,4-Trimethylbenzene, Chlordane, Chloroform, Chlorpyrifos, Copper, DDT, Diazinon, Dieldrin, Mercury, Meta-para xylenes, Nutrients, Organic Enrichment/Low Dissolved Oxygen, o-Xylenes, PCBs, p-Cymene, DCB, Pesticides, Selenium, Toluene, Toxaphene, Toxicity, and Trash. The Salton Sea has 303(d) impairments for Nutrients, Salinity, and Selenium.

E. Best Management Practices

Best Management Practices (BMPs) were originally developed to protect water quality by controlling erosion and sedimentation at the source. They have since been expanded to include controlling the volume and concentration of chemical pollutants entering Waters of the United States.

BMPs include such standard practices as lengthening runoff retention periods, covering bare areas with mulches, constructing infiltration facilities, and providing public education as to the consequences, both legally and environmentally, of illicit discharges to storm drains.

Quality control BMPs are further subdivided into source control BMPs as the primary system, and treatment BMPs as the secondary system. Treatment BMPs are more effective and efficient when used to handle pollutants that get past the source control BMPs. Quantity control BMPs are subdivided into volume control (e.g., infiltration and retention BMPs) and those directed toward peak rate control (e.g., retention facilities).

To maximize efficiency and minimize costs, treatment and quantity control BMPs can be designed into a single facility. An example is the use of a wet pond, which treats stormwater by allowing solids to settle out and promoting biological assimilation of dissolved pollutants through the use of an extended retention period. Peak rate is then obtained through the controlled release of water from the pond. In order to select, design and implement the most effective and efficient BMPs, certain parameters have to be established. Important items to consider include identification of target pollutants, physical and chemical characteristics of those pollutants, anticipated volumes and concentrations of pollutants and stormwater, and any regulatory action levels (e.g., drinking water standards, nondegradation policies).

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3.12 Biological Resources

3.12.1 Regulatory Framework

3.12.1.1 Federal Protection for Sensitive Wildlife Species and Habitats

Endangered Species Act. The federal Endangered Species Act of 1973 (ESA) provides a framework for the protection of plant and animal species that are at risk of becoming extinct. It is administered by the U.S. Fish and Wildlife Service (USFWS). Section 7 of the ESA requires each federal agency to consult with the USFWS about projects that may adversely affect species listed as threatened or endangered under the ESA ("listed species"). Habitat critical to these listed species may also be separately designated under the ESA.

The Section 7 consultation process requires each federal agency to prepare a "Biological Assessment" (BA) to determine if the project is likely to adversely affect listed species or designated critical habitat. In response, the USFWS prepares a "Biological Opinion" (BO) which states the USFWS position on whether the project would likely jeopardize the continued existence of the listed species or adversely modify designated critical habitat.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The MBTA is enforced by U.S. Fish and Wildlife Service (USFWS). This act prohibits the killing of any migratory birds without a valid permit. Any activity which contributes to unnatural migratory bird mortality could be prosecuted under this act. With few exceptions, most birds are considered migratory under this act.

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone without a permit issued by the USFWS from "taking" bald and golden eagles including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." For purposes of these guidelines, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

Federal Water Pollution Control Act (Clean Water Act). The Clean Water Act (CWA) provides a structure for regulating discharges into the waters of the U.S. The Environmental Protection Agency (EPA) is given the authority to implement pollution control programs. Section 404 of the CWA regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other U.S. waters. ACOE is the federal agency authorized to issue 404 Permits for certain activities conducted in wetlands or other U.S. waters. Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity occurring in or adjacent to Waters of the State. In California, the Regional Water Quality Control Boards (RWQCB) are the agency mandated to ensure protection of the State's

waters. For a Proposed Action that requires an ACOE CWA 404 permit and has the potential to impact Waters of the State, the RWQCB will regulate the project and associated activities through a Water Quality Certification determination.

California Desert Conservation Area (CDCA). The CDCA encompasses 25 million acres of land in southern California that were designated by Congress in 1976 through the Federal Lands and Policy Management Act. The BLM directly administers approximately 10 million acres of the CDCA. The CDCA Plan-designated Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan was prepared to give additional protection to unique cultural resource and wildlife values found in the region, while also providing for multiple use management. The ACEC Management Plan allows for the "traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so."

3.12.1.2 California State Protection for Sensitive Wildlife Species and Habitats

California Endangered Species Act. The California Endangered Species Act of 1984 (CESA) provides a framework for the listing and protection of wildlife species determined to be threatened or endangered in California.

California Fish and Game Code 3503.5. Raptors (birds of prey) and active raptor nests are protected by the California Fish and Game Code 3503.5. This code prohibits the "taking" of any birds of prey or their nests or eggs unless authorized.

California Fish and Game Code 3513. Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame birds.

California Fish and Game Code, Section 1600, as amended. Section 1602 of the California Fish and Game Code requires an entity to notify California Department of Fish and Game (CDFG) regarding any proposed activity within a stream or river channel. This includes activities which may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream or lake. CDFG may determine that the proposed activity will not substantially adversely affect an existing fish or wildlife resource. If not, the proposed activity may not be undertaken until the entity and CDFG enter into an agreement. The agreement would include reasonable measures necessary to protect the existing fish or wildlife resource.

Native Plant Protection Act. The Native Plant Protection Act (*California Fish and Game Code Section. 1900-1913)* (NPPA) prohibits the taking, possessing, or sale within the state of any plant listed by CDFG as rare, threatened, or endangered.

Porter-Cologne Water Quality Control Act, as amended. The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards RWQCBs power to

protect water quality and is the primary vehicle for implementation of California's responsibilities under the federal Clean Water Act. Any person proposing a discharge waste within any region must file a report of waste discharge with the appropriate board.

3.12.1.3 Local

County of Imperial General Plan

Relevant County of Imperial General Plan policies related to biological resources are provided below. Table 3.12-1 summarizes the project's consistency with the County's General Plan policies.

TABLE 3.12-1
Project Consistency with General Plan Biological Resource Policies

General Plan Policies	Consistency with General Plan	Analysis
Open Space Conservation Policy: The County shall participate in conducting detailed investigations into the significance, location, extent, and condition of natural resources in the County. Program: Notify any agency responsible for protecting plant and wildlife before approving a project which would impact a rare, sensitive, or unique plant or wildlife habitat.	Yes	Biological assessments and reports have been conducted at the project site in regard to the proposed project. Applicable agencies responsible for protecting plants and wildlife will be notified of the proposed project and provided an opportunity to comment on this EIR/EA prior to the County's consideration of any project's approvals.
Land Use Element Policy: The General Plan covers the unincorporated area of the County and is not site specific, however, a majority of the privately owned land is located in the area identified by the General Plan as "Agriculture," which is also the predominate area where burrowing owls create habitats, typically in the brims and banks of agricultural fields. Program: Prior to approval of development of existing agricultural land either in form of one parcel or a numerous adjoining parcels equally a size of 10 acres or more shall prepare a Biological survey and mitigate the potential impacts. The survey must be prepared in accordance with the United States Fish and Wildlife and California Department of Fish and Game regulations, or as amended.	Yes	See response to the Open Space Conservation Policy above. Additionally, a Burrowing Owl survey has been conducted in accordance with the wildlife agency protocols. The results and mitigation are provided in this section (3.12) and Section 4.12 of this EIR/EA.

Source: Imperial County, 1993 and Imperial County, 2008.

While this EIR/EA analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

3.12.2 Affected Environment

Information contained in this section is summarized from the *Biological Technical Report for the Imperial Solar Energy Center South Project* prepared by RECON Environmental, Inc. (October 15, 2010a); *Solar Field Access Road Addendum* prepared by RECON Environmental, Inc. (November 17, 2010); *Imperial Solar Energy South Spring 2010 Rare Plant Survey Report* prepared by RECON Environmental, Inc. (July 23, 2010b); *Burrowing Owl Nesting Season Surveys for the Imperial Solar Energy Center South Project* prepared by RECON Environmental, Inc. (July 29, 2010c); and, *Focused Survey Results for the Southwestern Willow Flycatcher on the Imperial Solar Energy Center South Project* prepared by RECON Environmental, Inc. (July 30, 2010d). These reports are provided on the attached CD of Technical Appendices as Appendix I-1, Appendix I-1a, Appendix I-2, Appendix I-3, and Appendix I-4 of this EIR/EA.

General biological surveys, rare plant surveys, and a preliminary jurisdictional delineation were conducted during the spring of 2010 within the proposed solar energy facility and transmission line corridor. In addition, focused burrowing owl and southwestern willow flycatcher surveys were conducted to map vegetation communities, inventory species present at the time of the survey, and assess the presence or potential for occurrence of sensitive and priority plant and animal species within the project area. A general survey of the solar field access road (IVS-8) was conducted in October 2010 and is described under separate cover, *Access Road Addendum to the Biological Technical Report for the Imperial Solar Energy Center South.*

Field surveys were conducted on the 1,360.1-acre survey area that includes the following project components:

Solar Energy Facility

- R-2: Imperial Solar Energy Center South Solar Field (927.6 acres)
- IVS-6: R-2 Corner Parcel (18.9 acres)
- IVS-8: Solar Field Access Road (6.8 acres)

Transmission Line Corridors

- IVS-1: Proposed Action Transmission Line 300-foot corridor (242.0 acres)
- IVS-3: Proposed Action Transmission Line Extension 500-foot corridor (68.5 acres)
- IVS-4: Alternative 1-Transmission Line 300-foot corridor (33.6 acres)
- IVS-5: Alternative 1-Transmission Line Extension 500-foot corridor (29.2 acres)
- IVS-7: Substation Buffer (33.5 acres)

The Proposed Action consists of a solar energy facility (R-2 and IVS-6) and its associated access road; a transmission line route alternative; and a reduced solar energy facility site alternative. The Proposed Action includes the solar energy facility, transmission line corridor portions (IVS-1 and IVS-3) and IVS-7 (Substation Buffer). Alternative 1-Alternative Transmission Line Corridor includes the solar energy facility, transmission line corridor (IVS-1, IVS-4, and IVS-5) and the Substation Buffer. Alternative 2-Reduced Solar Energy Facility Site includes the reduced solar energy facility and the same transmission line corridor portions as the Proposed Action, (IVS-1 and IVS-3) and IVS-7 (Substation Buffer). Figure 3.12-1 depicts the location of these project components.

3.12.2.1 Vegetation Communities

Vegetation communities are classified by the dominant or co-occurring species, and are referred to as alliances. Vegetation communities were mapped within the survey area on a one-inch-equals-400-feet color aerial photograph taken in the summer of 2009. In addition, the vegetation communities within a 1,000-foot buffer of the survey area were mapped in order to characterize the surrounding habitat. As summarized in Table 3.12-2, eight vegetation communities were mapped within the survey area, including creosote bush-white burr sage scrub, desert saltbush scrub, desert wash (smoke tree woodland mix), cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields. A small amount of disturbed and developed land is also present within the survey area. The Westside Main Canal, as well as other agricultural irrigation channels, were mapped adjacent to the survey area. The channels that are unvegetated but holding water are classified as open water. Figure 3.12-2 depicts the location of these vegetation communities on the project site for the Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site.

TABLE 3.12-2
Vegetation Communities/Land Cover Types Within the Project Survey Area

Vegetation Community/ Land Cover Type	Solar Energy Facility			Transmission Line Corridor (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site)					
	R-2 (acres)	IVS-6 (acres)	IVS-8 (acres)	IVS-1 (acres)	IVS-3 (acres)	IVS-4 (acres)	IVS-5 (acres)	IVS-7 (acres)	Total (acres)
Creosote bush-white burr sage scrub	0.3	17.5	--	195.3	60.0	33.0	29.2	31.3	366.6
Desert saltbush scrub	--	--	0.1	--	--	--	--	--	0.1
Desert wash	--	--	--	44.6	--	0.6	--	--	45.2
Cattail marsh	2.8	--	--	--	--	--	--	--	2.8
Arrow weed thicket	1.0	--	0.3	--	--	--	--	--	1.3
Mesquite thicket	--	--	--	--	8.1	--	--	--	8.1
Tamarisk thicket	5.8	--	--	--	--	--	--	--	5.8
Active agricultural fields	916.5	--	0.9	--	0.4	--	--	--	917.4
Disturbed/developed land	1.2	1.4	5.5	2.1	--	--	--	2.2	12.4
TOTAL	927.6	18.9	6.8	242.0	68.5	33.6	29.2	33.5	1360.1

Source: RECON Environmental, Inc., 2010b.

A. Creosote bush-white burr sage scrub

Solar Energy Facility Site (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Approximately 17.8 acres of the Creosote bush-white burr sage scrub vegetation occur on the solar energy facility site. The majority of this vegetation occurring on the solar energy facility site is found in IVS-6, the southwestern corner of the solar energy facility. Creosote bush-white burr sage scrub is considered native vegetation. Its alliance is dominated by creosote bush and white burr sage with relative sparse vegetative cover and flat topography. A number of annual species were observed during the spring surveys that offered a sparse herbaceous layer between shrubs. These species include desert sunflower, desert sand verbena, and Mediterranean grass.

Proposed Action and Alternative 2 Transmission Line Corridor

As shown on Table 3.12-2, approximately 232.6 acres of Creosote bush-white burr sage scrub vegetation occur on the Proposed Action and Alternative 2 Transmission Line Corridor (IVS-1, IVS-3, and IVS-7). The majority of this vegetation is identified in IVS-1.

Alternative 1-Alternative Transmission Line Corridor

Approximately 234.8 acres of Creosote bush-white burr sage scrub vegetation occur on the Alternative 1 Transmission Line Corridor (IVS-1, IVS-4, IVS-5, IVS-7).

B. Desert Saltbush Scrub

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site)

A narrow, linear strip of desert saltbush scrub, dominated by big saltbush (*Atriplex lentiformis* spp. *lentiformis*) and four-wing saltbush (*A. canescens*), is present along the edges of the agricultural fields adjacent to the solar field access road (IVS-8).

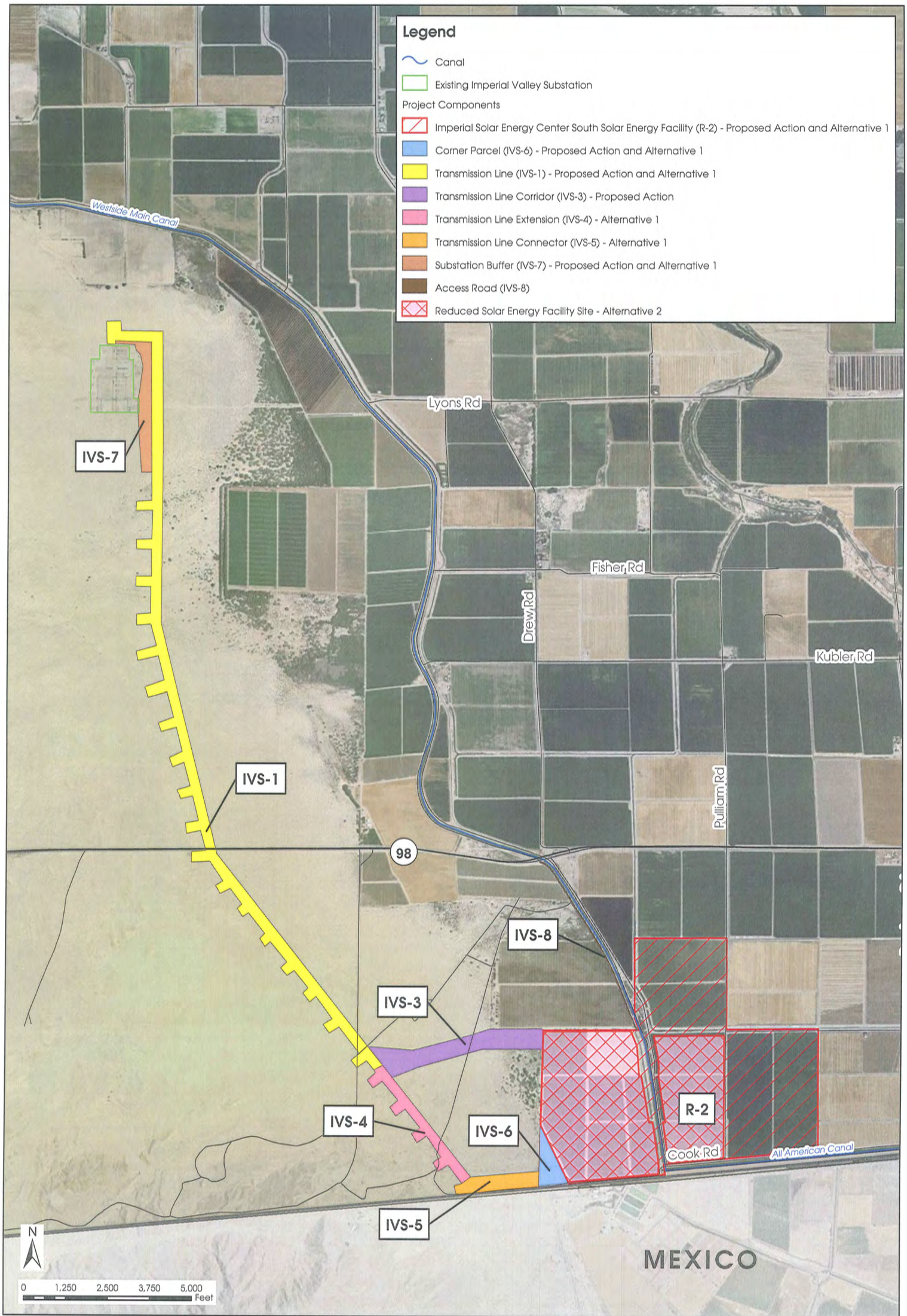
Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alternative Transmission Line Corridor

Desert saltbush scrub vegetation is not present on the Proposed Action and Alternative 2 Transmission Line Corridor or the Alternative 1-Alternative Transmission Line Corridor.

C. Desert Wash

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site)

Desert wash vegetation is not present on the solar energy facility site.



SOURCE: ESRI, 2010; RECON Environmental, Inc., 2010; BRG Consulting, Inc., 2010

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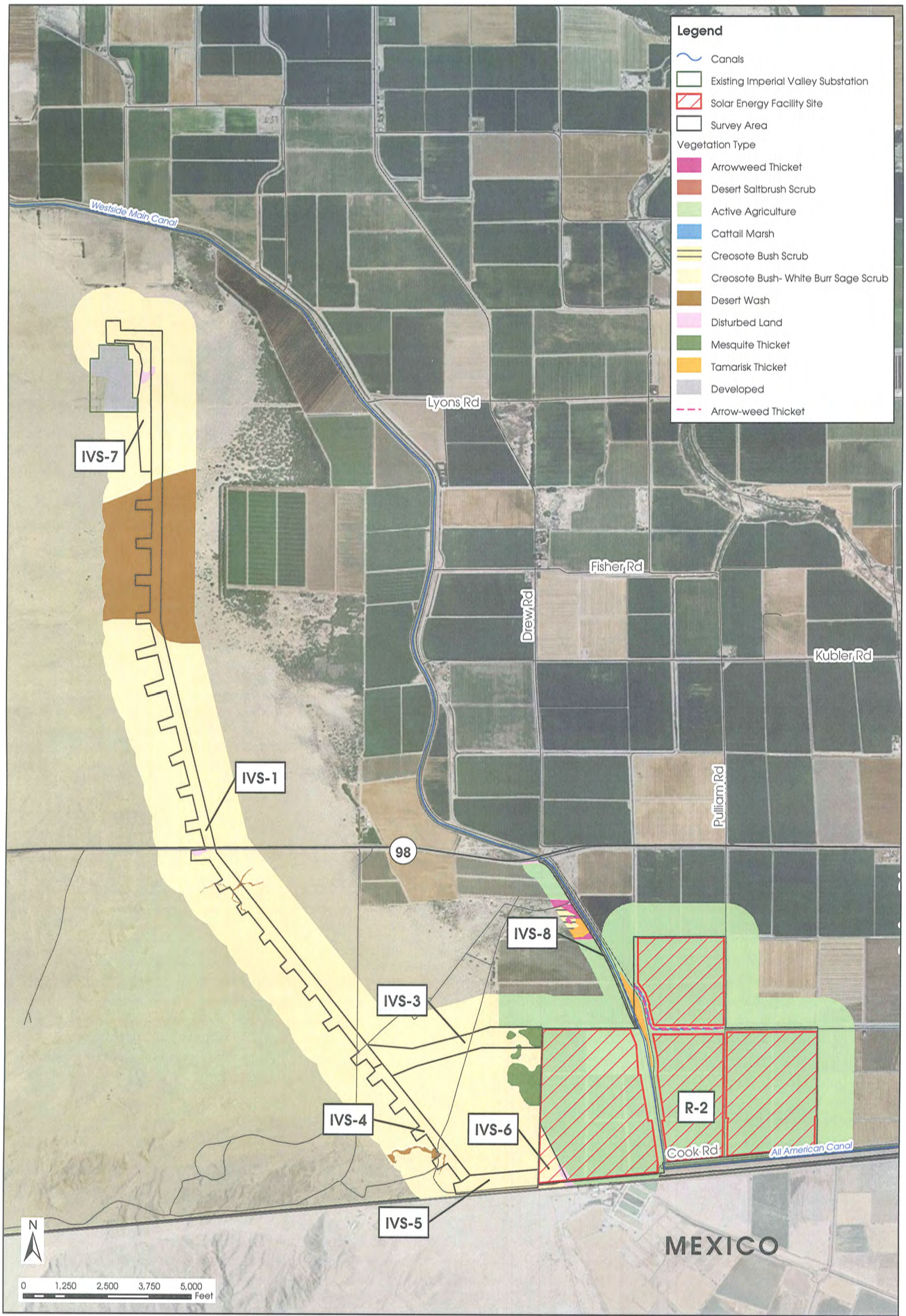
Imperial Solar Energy Center South

Overview of the Imperial Solar Energy Center South Project

FIGURE 3.12-1

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 12\Figure 3.12-1 Overview of the Imperial Solar Energy Center South Project.mxd

11X17 color (back)



SOURCE: ESRI, 2010; RECON Environmental, Inc., 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Vegetation Communities

FIGURE 3.12-2

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 12\Figure 3.12-2 Vegetation Communities.mxd

11X17 color (back)

Proposed Action and Alternative 2 Transmission Line Corridor

Approximately 44.6 acres of Desert wash occur on IVS-1 of the Proposed Action and Alternative 2 Transmission Line Corridor. A number of desert washes, flow northeast through the transmission corridor from Mount Signal into the Westside Main Canal. These washes are braided with the main flow channels primarily lacking in vegetation, while the sandbars and banks support the smoke tree woodland vegetation alliance. The areas dominated by smoke tree woodland support a number of species, including rayless encelia, sweetbush, individual honey mesquite trees and tamarisk trees.

Alternative 1-Alternative Transmission Line Corridor

Approximately 44.6 acres of Desert wash occur on IVS-1 and 0.6 acre on IVS-4 of the Alternative 1 Transmission Line Corridor.

D. Cattail marsh

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, Alternative 2-Reduced Solar Energy Facility Site)

Approximately 2.8 acres of cattail marsh are present in one of the irrigation channels located in the central portion of the solar energy facility site. Broad-leaved cattail is the dominant species in this vegetation alliance, with tamarisk also present throughout.

Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alternative Transmission Line Corridor

Cattail marsh vegetation is not present on the Proposed Action and Alternative 2 Transmission Line Corridor or the Alternative 1-Alternative Transmission Line Corridor.

E. Arrow weed thicket

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Approximately one acre of arrow weed occurs along the edges of the irrigation canal on the solar energy facility site, forming 5- to 10-foot deep arrow weed thickets. These thickets largely exclude other plant species, but weedy invasive species such as sow thistle, Sahara mustard, and London rocket grow along the banks in between the arrow weed thickets.

Approximately 0.3 acre of arrow weed thicket is present along the western edge of the IVS-8 solar field access road. A portion of this arrow weed thicket is a monoculture of arrow weed, while the northern patches of the arrow weed thicket contain scattered creosote bushes or tamarisk trees.

Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alternative Transmission Line Corridor

Arrow weed thicket vegetation is not present on the Proposed Action and Alternative 2 Transmission Line Corridor or the Alternative 1-Alternative Transmission Line Corridor.

F. Mesquite Thicket

Solar Energy Facility (Proposed Action, Alternative 1-Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Mesquite thicket vegetation is not present on the solar energy facility site.

Proposed Action and Alternative 2 Transmission Line Corridor

Approximately 8.1 acres of mesquite thicket occur on the Proposed Action and Alternative 2 Transmission Line Corridor. This vegetation is present along the eastern edge of the IVS-3 portion of the corridor, adjacent to an irrigation ditch. Mesquite thicket is dominated by honey mesquite. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees.

Alternative 1-Alternative Transmission Line Corridor

Mesquite thicket vegetation is not present on the Alternative 1-Alternative Transmission Line Corridor.

G. Tamarisk Thicket

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Approximately 5.8 acres of tamarisk thicket occur on the solar energy facility site. A large tamarisk thicket is present on the northwest boundary of the solar energy facility, along the Westside Main Canal. Tamarisk thickets are dominated by tamarisk trees.

Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alternative Transmission Line Corridor

Tamarisk thicket vegetation is not present on the Proposed Action and Alternative 2 Transmission Line Corridor or the Alternative 1-Alternative Transmission Line Corridor.

H. Agriculture

Solar Energy facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

The majority of the solar energy facility site is an active agricultural field cultivating alfalfa. Approximately 916.5 acres occur on the solar energy facility, and 0.9 acre of alfalfa and orchard fields are on the western side of the IVS-8 solar field access road corridor.

Proposed Action and Alternative 2 Transmission Line Corridor

Approximately 0.4 acre occurs on IVS-3 of the Proposed Action and Alternative 2 Transmission Line Corridor.

Alternative 1 Transmission Line Corridor

Active agricultural land is not present on the Alternative 1-Alternative Transmission Line Corridor.

I. Disturbed/Developed Land

Solar Energy Facility (Proposed Action, Alternative 1-Alternative Transmission Line Corridor)
Approximately 2.6 acres of disturbed/developed land occur on the solar energy facility site, with a majority located in the southeast corner of IVS-6. These areas contain little to no vegetation. An additional 5.5 acres of disturbed/developed land is present within the IVS-8 solar field access road corridor, comprised of the existing IID road and un-vegetated or sparsely vegetated berm adjacent to the road.

Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alternative Transmission Line Corridor
Approximately 4.3 acres of disturbed/developed land occur on IVS-1 and IVS-7 on both the Proposed Action and Alternative 2 Transmission Line Corridor and Alternative 1-Alterntaive Transmission Line Corridor.

3.12.2.2 Wildlife

The wildlife species observed on-site were typical of the desert scrub, desert wash, and agricultural habitats, which provide cover, foraging, and breeding habitat for a variety of native wildlife species. Animals observed onsite within the Proposed Action, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site are listed in Attachment 3 of the biological technical report (Appendix I-1 of this EIR/EA).

3.12.2.3 Sensitive Biological Resources

A. Special Status Plant Species (Proposed Action and Alternative 1 Transmission Line Corridor)

There are a number of special status plant species that are known from the vicinity of the project area. Attachment 4 of the biological technical report (Appendix I-1 of this EIR/EA) lists all species known from the vicinity that are listed by the federal or state government as threatened or endangered, or are listed as sensitive by BLM or the State of California as a Species of Special Concern.

Federally Listed Species
Based on the literature review, one federally threatened plant species, Peirson's milkvetch, was identified as having the potential to occur within the survey area. However, this species was not observed during focused spring rare plant surveys, and is not expected to occur based on elevation, lack of dune habitat, and range restrictions.

State Listed Species
Three state-listed species were identified during the literature review as having the potential to occur within the survey area: Algodones Dunes sunflower, Wiggins' croton, and Peirson's milkvetch. However, these species were not observed during focused spring rare plant surveys, and are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

BLM Sensitive Species

BLM sensitive species include all species currently on California Native Plant Society (CNPS) List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), as well as others that are designated by the California's BLM State Director. Several BLM sensitive species were identified as having the potential to occur within the survey area. However, these species were not observed during focused spring rare plant surveys, and either have a low potential to occur or are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

Priority Plant Species

Priority plant species are rare, unusual, or key species that are not considered sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2-4. List 2 contains plants that are rare, threatened, or endangered in California, but more common elsewhere. List 3 contains plants which needs more information. The plants in List 4 are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears relatively low at this time. Three priority plant species were observed within the survey area during spring rare plant surveys, including Wolf's cholla, Thurber's pilostyles, and Parish's desert thorn. Table 3.12-3 summarizes these priority plant species, CNPS status, and observed location.

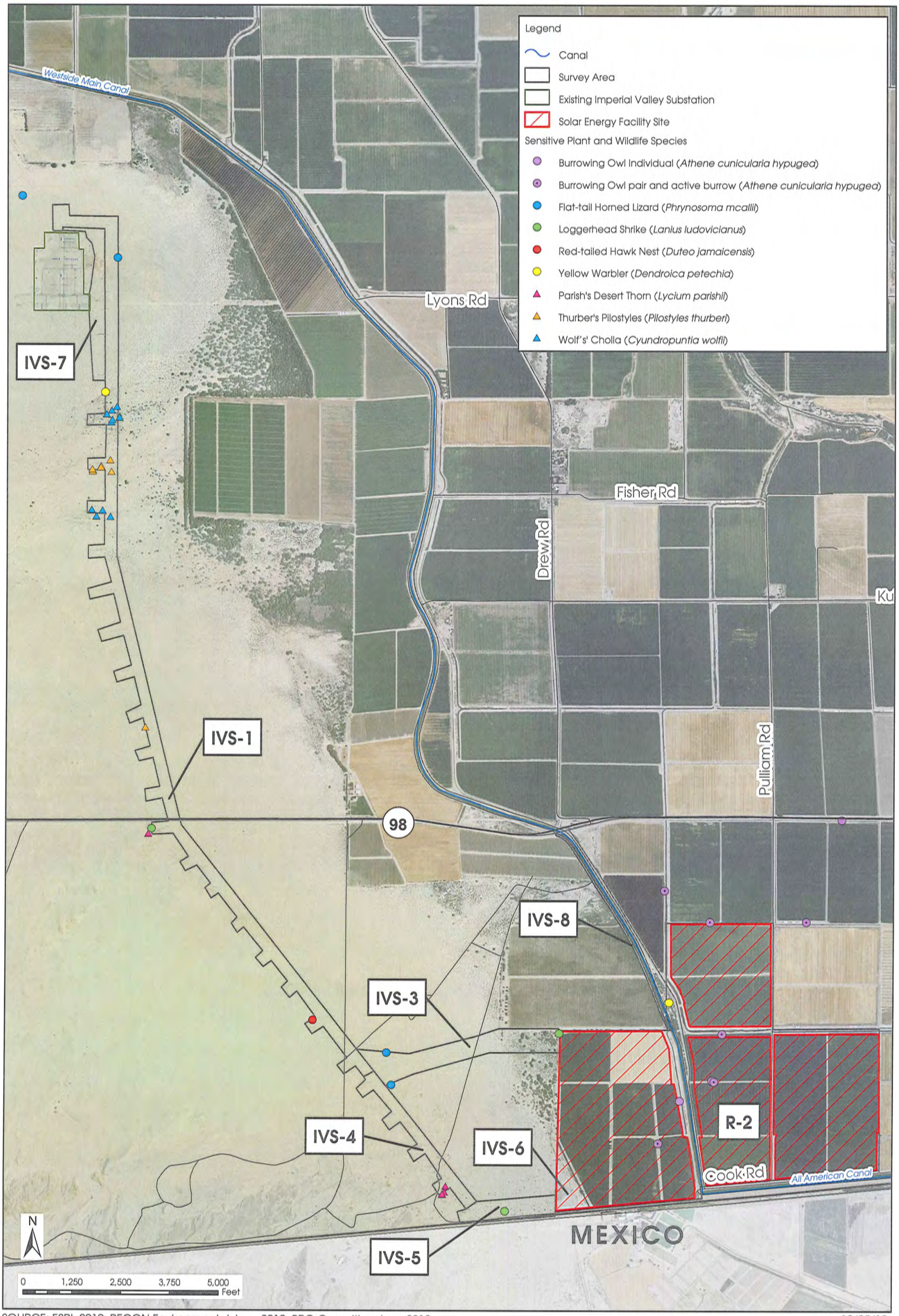
TABLE 3.12-3
Priority Plant Species Observed On-Site

Species Name	CNPS Status	Observed Location(s)
Wolf's cholla	List 4	IVS-1 (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)
Thurber's pilostyles	List 4	IVS-1 (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)
Parish's desert thorn	List 2	IVS-4 (Alternative 1-Alternative Transmission Line Corridor)

Source: BRG Consulting and RECON Environmental, Inc. (2010).

Wolf's cholla is a CNPS (2001) List 4 species. This generally erect cylindrical cactus grows up to six feet tall and bears pale purple-brown flowers with red-purple filaments in April and May. The range of Wolf's cholla is limited to the western edge of the Sonoran desert in Imperial and San Diego Counties and Baja California. It occurs in creosote-bush scrub between elevations of 1,000 and 3,000 feet, where it can be locally common.

As depicted in Figure 3.12-3, nine Wolf's chollas were observed within the braided wash system south of the Imperial Valley Substation within IVS-1 of the proposed transmission line corridor (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site). These plants were scattered in the desert wash (smoketree woodland alliance)



SOURCE: ESRI, 2010; RECON Environmental, Inc., 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center South

Special Status Species

FIGURE 3.12-3

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 12\Figure 3.12-3 Special Status Species.mxd

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vegetation community. This species was in bloom during the survey period and was positively identified based on its upright growth form and red-purple filaments.

Thurber's pilostyles is a CNPS List 4 species. It is a perennial stem-parasite in the rafflesia family that shows only its flowers and bracts on the stem of its host plant. The host plant is indigo bush, usually Emory's indigo bush. While Emory's indigo bush occurs in both the southern Mojave and Sonoran deserts, in California Thurber's pilostyles is limited to the southern Sonoran Desert in Riverside, San Diego, and Imperial Counties, where it occurs in open desert scrub at elevations below 1,000 feet.

As depicted in Figure 3.12-3, Thurber's pilostyles was observed on six Emory's indigo bush shrubs located within the desert wash in IVS-1 of the proposed transmission line corridor (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site), just south of the Imperial Valley Substation.

Parish's desert thorn is a CNPS List 2 species. It is an intricately-branched spiny shrub in the nightshade family that may grow 10 feet tall and produces purplish tubular flowers in March and April. Parish's desert thorn is found from Sonora, Mexico and Arizona to Riverside, Imperial, and eastern San Diego counties. The habitat for Parish's box-thorn is sandy to rocky slopes in creosote-bush desert scrub at elevations below 3,300 feet. Two Parish's desert thorns were observed along the desert wash within IVS-4 of the Alternative 1 Transmission Line Corridor.

B. Special Status Wildlife Species (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

A number of special status wildlife species were evaluated for the potential to occur within the survey area. Table 13.2-4 provides a summary of 17 of these species and their potential to occur on the project site. These species are discussed in detail below, and include federally listed species, state-listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

Federally Listed Species

Five federally listed or proposed listed wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro field offices' jurisdiction: flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*), Yuma clapper rail (*Rallus longirostris yumanensis)*, southwestern willow flycatcher (*Empidonax traillii extimus)*, least Bell's vireo (*Vireo bellii pusillus*), and Peninsular bighorn sheep (*Ovis Canadensis nelsoni)*.

Flat-tailed Horned Lizard (Phrynosoma mcallii)-Proposed Threatened. In California, the FTHL was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the California Fish and Game Commission (CFGC) to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the FTHL as a threatened species (USFWS 2010a). In 2006, the USFWS withdrew its proposal (USFWS 2006). On March 2, 2010, USFWS re-instated the 1993 proposed listing of the FTHL as federally threatened (USFWS 2010a). The Ninth Circuit Court of Appeals has ordered the USFWS to make a final listing determination by November 3, 2010.

FTHL have the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark dorsal stripe, lack of external ear openings, broad flat tail, and comparatively long spines on the head (Funk 1981 as cited in ICC 2003). The FTHL has two rows of fringed scales on each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher 1992 as cited in ICC 2003).

FTHLs escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980 as cited in ICC 2003).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub vegetation communities. However, this species may also be found in desert scrub, desert wash, succulent shrub, alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. It is typically found in dry, hot areas of low elevation (less than 800 feet).

Human activities have resulted in the conversion of approximately 34 percent of the historic habitat of the FTHL. The decline in the FTHL population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, off-highway vehicle (OHV) recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol (USBP) activities (ICC 2003). The Argentine ant (*Linepithema humile*), an invasive species, was considered as a possible threat, but dismissed as such, since the climate at the dunes is too dry for Argentine ants to survive.

Flat-tailed Horned Lizard Interagency Coordinating Committee (ICC)'s *Flat-tailed Horned Lizard Rangewide Management Strategy* (2003) designated five Management Areas (MAs) to help focus conservation and management of FTHL key populations. The action area for the Proposed Action falls partially within the Yuha Basin Management Area; while the proposed transmission line falls within the MA, the proposed solar field is adjacent to the MA.

The BLM recently estimated the population size on the three MAs by using capture-mark-recapture techniques incorporating detection probabilities (USFWS 2010f). Grant analyzed the BLM mark-recapture data from the Yuha Desert MA for 2002 and 2004. The Yuha Desert MA in 2002 was estimated to have 25,514 adult lizards (95 percent confidence interval= 12,761 to 38,970), and in 2004 was estimated to have

73,017 adult lizards (95 percent confidence interval=4,837 to 163,635) (USFWS 2010f). Recent data indicate that a relatively large FTHL population remains in the Yuha Desert, and a recent report from USFWS (2010 as cited in USFWS 2010f) analyzing several years of occupancy and demographic data concluded that FTHL populations in the Yuha Desert MA are not low and have not declined since 2007 and probably have not declined since 1997 (USFWS 2010f). However, recently analyzed, unpublished USFWS data over all years indicate that the density of FTHL in the Yuha MA ranges between 1.3 to 3.1 animals/hectare with a confidence interval of 95% (2010 as cited in USFWS 2010f). It must be noted also that the research plots for the population studies, the demographic plots within the MAs, are selected based on the best available FTHL habitat within each MA. Therefore the data are not random and habitat within the Yuha MA varies by substrate, plant cover, OHV use, etc.

Due to the known occupation of FTHL within the MA, no protocol-level surveys were required or conducted along the proposed transmission line. As depicted in Figure 3.12-3, two FTHLs were observed during spring/summer 2010 surveys within the creosote bush-white burr sage scrub at the west end of IVS-3. In accordance with the Rangewide Management Strategy, occupancy of FTHL within the MA is assumed; therefore, all of the transmission corridor ROWs (IVS-1, IVS-3, IVS-4, IVS-5, and IVS-7) are considered occupied by FTHL.

Habitat for FTHL throughout much of the proposed corridors is consistent with habitat criteria for this species, including sparse desert scrub and desert wash vegetation, soft, sandy soils, and the presence of harvester ants. Topography immediately north and south of Highway 98 (within one mile in each direction) appears to be flatter and the soils more compact than areas farther away from the Highway. Studies by the ICC suggest that recorded densities of FTHL adjacent to Highway 98 are fewer than in habitat farther from the paved highway (ICC 2003). The more compact nature of the soils observed during 2010 surveys adjacent to the Highway, and lack of FTHL observations in these areas, lends support to the assessment that the habitat adjacent to the Highway 98 provides only moderate quality habitat rather than the high quality habitat throughout the rest of the proposed ROW.

The creosote bush-white burr sage scrub vegetation within the southwest corner of the proposed solar field (IVS-6) is adjacent to, and contiguous with, the FHTL MA. Although no FTHL were observed within this parcel, the creosote bush-white burr sage scrub vegetation provides suitable habitat for FTHL.

The desert saltbush scrub and arrow weed thicket within the IVS-8 access road corridor, although within the Yuha FTHL MA, do not provide suitable habitat for this species. Both vegetation communities are comprised of dense vegetation (80-100% cover), and are adjacent to a well traveled dirt road and active agricultural fields.

The active agricultural fields do not provide habitat for this species due to lack of appropriate vegetation, soils, and harvester ants. The active agricultural fields are not within a Management Area, no FTHLs were observed within these fields during general surveys, and no FTHLs are expected to occur within these fields.

Yuma Clapper Rail (*Rallus longirostris yumanensis*). The Yuma clapper rail was federally listed as endangered on March 11,1967, under the Endangered Species Preservation Act, and state-listed as threatened on February 22, 1978. The Yuma clapper rail is also protected under the Migratory Bird Treaty Act (MBTA) and similar State laws. Critical habitat has not been established for this species. The Yuma clapper rail breeds in freshwater marshes along the Colorado River from Needles, California, to the California delta and at the Salton Sea. This bird breeds in freshwater marshes and brackish waters and nests on firm, elevated ground, often under small bushes. It typically occupies emergent marsh vegetation, such as mature stands of bulrush and cattail around the Salton Sea. Nests are built between March and late July in clumps of living emergent vegetation over shallow water. Typical home ranges exceed 17 acres, increasing after the breeding season.

The diet of Yuma clapper rails is dominated by crayfish, with small fish, tadpoles, clams, and other aquatic invertebrates also utilized (Ohmart and Tomlinson 1977, Anderson and Ohmart 1985, Todd 1986, Eddleman 1989, Conway 1990 as cited in USFWS 2010b). The seasonal availability of crayfish in different habitat locations corresponds to shifts in habitat use by Yuma clapper rails (Bennett and Ohmart 1978, Eddleman 1989, Conway et al. 1993 as cited in USFWS 2010b).

Yuma clapper rails are active most of the daylight hours, with little to no activity after dark. Daily movement was lowest during the late breeding period (May-July) and highest during the late winter (January-February) (USFWS 2010b). Juvenile dispersal, movements by unpaired males during the breeding season and by both sexes post-breeding, and relocations in response to changing water levels are also documented (USFWS 2010b). Studies to determine migratory patterns showed a difficulty in locating the Yuma clapper rail during winter months without telemetry. While the Yuma clapper rail was previously thought to be migratory, experts have determined that they are year-round residents, albeit discreet during winter months, of the lower Colorado River and Salton Sea (USFWS 2010b).

This species was not observed during surveys and is not expected to nest within the survey area. The nearest known location for this species is approximately two miles east of the survey area, adjacent to the New River (USFWS 2010c). No crayfish were observed within the small amount of cattail marsh vegetation present within a concrete lined irrigation channel adjacent to the survey area. While the survey area contains a small amount of disturbed cattail marsh, the lack of crayfish provides unsuitable foraging habitat for this species. In addition, it is isolated and does not provide banks or shores next to the cattail marsh that are protected from human disturbance. No suitable habitat exists within the project site that provides foraging and adequate safe nesting areas for this species.

Southwestern Willow Flycatcher (Empidonax traillii extimus). The southwestern willow flycatcher is federally listed as endangered, and all willow flycatchers in California, including the southwestern and two other susbspecies (*E.t. brewsteri* and *E.t. adastus)* are state listed as endangered. Critical habitat was designated for the southwestern willow flycatcher on October 19, 2005 in San Diego County, California, and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

Willow flycatchers are in the Tyrannidae family and are one of ten species of *Empidonax* flycatchers in the United States. *Empidonax* flycatchers are difficult to distinguish visually but have distinctive songs. The southwestern willow flycatcher is generally paler than other willow flycatcher subspecies and also differs in morphology. Southwestern willow flycatchers are migrants, arriving on their breeding grounds in mid-May to early June (Garrett and Dunn 1981; Unitt 2004). The southwestern willow flycatcher migrates from its breeding range in August or September. Several subspecies of willow flycatcher migrate through southern California, with the most common migrant being *E. t. brewsteri* (Unitt 2004). It is virtually impossible to differentiate between subspecies of willow flycatcher during migration. The southwestern willow flycatcher requires riparian habitat with willow (*Salix* spp.) thickets (Unitt 2004). Understory species include mule fat (*Baccharis* sp.) and arrow weed (*Pluchea* sp.). Southwestern willow flycatchers also nest in areas with tamarisk (*Tamarix* spp.) and Russian olive (*Eleagnus angustifolia*) in areas where these species have replaced the native willow. Surface water is required at nesting sites. Estimated nesting habitat patch size varies from 0.2 to 1.5 acres. Nests are constructed in densely vegetated thickets with trees between 13 and 23 feet in height (Tibbitts et al. 1994; USFWS 1993).

Threats in the United States include loss of riparian habitat due to water diversion, flood control, urbanization, grazing, and invasion of non-native species. Parasitism by brown-headed cowbirds has been a significant factor in the decline of this species in California and Arizona and elsewhere (Sedgwick 2000). Tropical deforestation may also contribute to the decline of this species, but the effects are not known (USFWS 1993).

The southwestern willow flycatcher breeds in southern California, Arizona, New Mexico, southern Nevada, southern Utah, western Texas, northwestern Mexico, and possibly southwestern Colorado and winters in Mexico, Central America, and possibly northern South America (USFWS 1993). Historically common in all the lower-elevation riparian areas of southern California, the southwestern willow flycatcher was found in the Los Angeles Basin, San Bernardino/Riverside County area, and San Diego County (Unitt 2004). Southwestern willow flycatcher persists in the Colorado, Owens, Kern, Mojave, Santa Ana, Santa Margarita, San Luis Rey, Santa Clara, Santa Ynez, Sweetwater, and San Dieguito river systems and in San Timeteo, Pilgrim, and Temecula Creeks.

Southwestern willow flycatchers are not expected to nest within the survey area due to lack of suitable habitat.

During focused burrowing owl surveys in early June 2010, at least five willow flycatchers were observed foraging in a wind-row comprised of mesquite and tamarisk trees approximately 4.5 miles north of the action area (RECON 2010c). In order to determine subspecies and migratory status of this species, a USFWS protocol survey for southwestern willow flycatcher was initiated for both ISEC South and West projects.

Four focused surveys for southwestern willow flycatcher took place June 13 and 23, and July 7 and 13, 2010. On June 13th, one willow flycatcher was observed within the tamarisk thicket adjacent to the Westside Main Canal. Prior to this observation, a recording of the southwestern willow flycatcher vocalization was played in order to elicit a response. The individual willow flycatcher did not respond to the vocalization for the

southwestern subspecies, but did respond to the vocalization of the northern subspecies *E. t. brewsteri.* During the subsequent surveys for both the ISEC South and West projects in late June and July 2010, no willow flycatchers were detected.

Based on this preliminary data, the willow flycatchers observed in early June are likely *E. t. brewsteri,* utilizing the riparian vegetation for foraging during migration. Based on all available data of southwestern willow flycatcher habits, known populations, and habitat requirements, no willow flycatchers, including the southwestern subspecies, are expected to nest within the survey area.

Least Bell's Vireo (Vireo bellii pusillus). Least Bell's vireo was federally listed as an endangered species on May 2, 1986, and the USFWS designated critical habitat for the least Bell's vireo in 1994 (USFWS 1994). A draft recovery plan for the least Bell's vireo was developed in 1998 (USFWS 1998).

Least Bell's vireo is a small, nondescript vireo, with generally gray plumage, rounded wings with pale white wing bars and narrow white eye rings. Juveniles are distinguished from adults by whiter plumage and more distinct wing bars. This species has a distinctive song and is most easily located through its vocalizations. Least Bell's vireo is a migratory songbird that winters in Baja California, Mexico, arriving in California from mid-March to April and departing for Baja California again in September (Brown 1993). Breeding season generally ranges from March through July. Males establish breeding territories that range in size from 0.5 to 4 acres (RECON 1988). Nests are commonly located on branches approximately 1.5 to 5 feet above the ground (Brown 1993). Most pairs produce only one brood per season but have been documented to produce up to four in one season (Franzreb 1989). Least Bell's vireo is parasitized throughout its breeding range by brown-headed cowbirds (*Molothrus ater*), which are the cause of a substantial proportion of nest failures (Brown 1993).

These birds are restricted to dense riparian habitats that usually have a canopy of willows (*Salix* spp.) and an understory comprised of mule fat (*Baccharis* sp.), wild rose (*Rosa californica*), and other riparian species (Franzreb 1989). Least Bell's vireos select riparian areas with dense shrub cover and a well-developed understory for nesting. Degradation of riparian habitat due to invasion by exotic plants, grazing practices, and other causes have decreased the amount of available habitat for least Bell's vireo.

Least Bell's vireo was historically common, ranging from near Red Bluff in Tehama County south through the Central Valley and the foothills of the Sierra Nevada. In the coastal region this bird ranged from Santa Clara County south to San Fernando in Baja California. Desert sites include Owens Valley, Death Valley, and oases in the Mojave Desert (Franzreb 1989).

After 1940, extensive habitat loss and nest parasitism by the brown-headed cowbird caused the population to decline and this species has been extirpated from many historic areas, including the Central Valley (Franzreb 1989). It has been estimated that 95-97 percent of the riparian habitat within the floodplain of southern California has been lost due to flood control measures and development (Faber et al. 1989). In 1986 when least Bell's vireo was listed as endangered, the total population in California was estimated at 300 pairs, with the majority of the birds located in San Diego County. Following the listing, intensive brown-

headed cowbird trapping programs were initiated and the population began to increase, showing exponential growth in some locations such as the Santa Margarita River, Tijuana River, and Prado Basin and Hidden Valley Drain on the Santa Ana River.

Currently, least Bell's vireo is known from coastal Santa Barbara County south into Baja California. Least Bell's vireo is also present in the desert of San Diego County at Anza Borrego State Park, where 117 territories were recorded in 2002 (USFWS 2006). Large populations are located on the Santa Margarita River in San Diego County and the Santa Ana River in Riverside and San Bernadino Counties (USFWS 2006).

No least Bell's vireo were observed within the survey area during various spring and summer surveys conducted in 2010. There are no large riparian corridors that provide suitable habitat for this species to nest within the survey area, and the nearest reported location of this species is approximately 25 miles to the northwest (State of California 2010b). This species may forage within the survey area during migration, but it is not expected to use the survey area for long term nesting or foraging.

Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*). According to USFWS, the Peninsular bighorn sheep is federally listed as endangered, and state listed as threatened. Previously, this subspecies was considered to be distinct from other subspecies. However, new DNA analysis has concluded that the Peninsular bighorn sheep are synonymous with Nelson's bighorn sheep. The distinct vertebrate population segment that occurs within the Peninsular Ranges is the population of this subspecies that was listed as federally endangered. Critical habitat includes portions of western Imperial County, approximately 20 miles west of the survey area.

Peninsular bighorn sheep occur on steep, open slopes, canyons, and washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical, because bighorn primarily rely on their sense of sight to detect predators (USFWS 2001). Most Peninsular bighorn sheep live between 300 and 4,000 feet in elevation, where average annual precipitation is less than four inches and daily high temperatures average 104 degrees Fahrenheit in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during the hotter months. In the Peninsular Ranges, bighorn sheep use a wide variety of plant types as food sources, including shrubs, forbs, cacti, and grasses (USFWS 2001). Although steep escape route terrain is closely associated with bighorn sheep, low rolling and flat terrain including foothills and washes provide an alternative source of high quality browse forage during times when resources become limited (USFWS 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans (sloping deposits of gravel, sand, clay, and other sediments that spread fanlike at the base of canyons and washes) are also used for breeding, feeding, and movement (USFWS 2001).

Historically, bighorn sheep have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton 1930, as cited in USFWS 2001). The distribution of Peninsular bighorn sheep has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS 2001). Bighorn sheep exhibit a natural patchy distribution as a result of natural breaks in mountainous habitat (Schwartz et al. 1986 and Bleich et

al. 1990a and 1996, as cited in USFWS 2001). Currently, the Peninsular bighorn is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S.–Mexico border to the San Jacinto Mountains in Riverside County (USFWS 2001).

Prior to 2009, the nearest recorded location for this species was approximately 16.7 miles west of the survey area, in the rocky hills southwest of Ocotillo, California (State of California 2010b). In March 2009, biologists observed a small herd (five ewes and/or juveniles) on the Imperial Valley Solar Project, located northwest of the proposed ISEC West solar field (BLM 2010). This sighting was approximately 4 miles east of designated critical habitat, and was considered an unusual occurrence as the habitat on the Imperial Valley Solar project site is not optimal for the sheep due to lack of cover, escape routes, human recreational OHV use, and distance from typical habitat (BLM 2010).

The survey area does not contain the steep, rocky terrain that typically provides cover and habitat for the Peninsular bighorn sheep. The Coyote, In-Ko-Pah, and Jacumba Mountains, peninsular ranges that provide suitable year-round habitat for this species, are located seven to ten miles from the Proposed Action. The project is situated adjacent to the large agricultural complex that surrounds El Centro, and does not function as a movement corridor for Peninsular bighorn sheep between the peninsular mountain ranges in the Imperial Valley. While it is possible that the Peninsular bighorn sheep may on the rare occasion move into the survey area for foraging, the site is too far from shelter and cover to be a regular source for foraging or water (USFWS 2000). The proximity of the survey area to continuous agricultural activities also reduces the likelihood of use by Peninsular bighorn sheep, who are sensitive to human activity and disturbance (USFWS 2010f).

Peninsular bighorn sheep were not detected in the survey area during various biological surveys conducted in April, May, June, and July 2010. Given the distance from suitable rocky terrain; sparse vegetation within the survey area; lack of detection within the survey area; and the unlikelihood of the survey area to function as a corridor for this species, Peninsular bighorn sheep are not likely to occur within the survey area.

State-Listed Species

Four state-listed wildlife species were evaluated based on their known occurrences in Imperial County: greater sandhill crane (*Grus canadensis tabida*), Yuma clapper rail, barefoot banded gecko (*Coleonyx switaki*), and Peninsular bighorn sheep. Of these species the Yuma clapper rail and Peninsular bighorn sheep are also federally listed and were already discussed above.

Sandhill Crane (*Grus canadensis tabida*). The sandhill crane is state-listed as threatened and is protected under the federal MBTA and similar State legal protections. This species is known to winter in Imperial County (Zeiner et al. 1989). Both greater (*Grus canadensis tabita)* and lesser (*G.c. canadensis)* sandhill cranes occur in California. *G.c. tabita* occurs in and near wet meadow, shallow lacustrine and fresh emergent wetland habitats in summer. It winters primarily in the Sacramento and San Joaquin valleys from Tehama County south to Kings County where it frequents annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains. The

migratory subspecies *G.c. canadensis* winters in similar habitats in the San Joaquin and Imperial valleys. In southern California, it concentrates on the Carrizo Plain, San Luis Obispo County, and smaller flocks near Brawley, Imperial County, and Blythe, Riverside County. Outside of known wintering grounds, *G.c. tabida* is extremely rare except that it migrates over much of the interior of California. A few coastal sightings of greater sandhill crane exist from Marin Co. southward, but no records from offshore islands. When foraging, the greater sandhill crane prefers open shortgrass plains, grain fields, and open wetlands (Zeiner et al. 1989), but it may also feed on dry plains far from water. The greater sandhill crane feeds on grasses, forbs, especially cereal crops (newly planted or harvested); and also uses its long bill to probe in soil for roots, tubers, seeds, grains, earthworms, and insects. It will also feed on larger prey, such as mice, small birds, snakes, frogs, and crayfish.

The sandhill crane is likely to forage within the agricultural fields of the solar energy facility during winter, but this species is not expected to breed in the survey area.

Barefoot Banded Gecko (*Coleonyx switaki*). The barefoot banded gecko is state listed as threatened. Its known range occurs along the eastern face of the Peninsular Ranges in San Diego and Imperial Counties, and little information is known about its extended range or abundance.

Habitat for the barefoot banded gecko is found in arid rocky areas on flatlands, canyons, and thornscrub, especially where there are large boulders and rock outcrops, and where vegetation is sparse (Murphy 1974). In California, inhabits the arid desert slopes of the eastern side of the Peninsular Ranges from near Borrego Springs south to the Baja California border, and may occur at elevations from near sea level to over 2,000 ft. (700 m). An isolated population is known to occur in the Coyote Mountains of Imperial County. It ranges farther south in Baja California along the eastern edge of the mountains to near Santa Rosalia (Murphy 1974).

The barefoot banded gecko is insectivorous. Most likely, the breeding season lasts from Spring to Summer, May to July. Females lay one or two eggs, roughly three weeks after mating, and may lay eggs several times each season. Eggs hatch after around two months, in late summer to early fall (Murphy 1974).

No barefoot banded geckos are expected to occur within the project area based on a lack of suitable habitat in the form of large boulders and rocky outcrops.

BLM Sensitive Wildlife

Six BLM sensitive wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro Field Office's jurisdiction: Colorado Desert fringe-toed lizard, FTHL, barefoot banded gecko, burrowing owl, California leaf-nosed bat, and pallid bat. The FTHL and barefoot banded gecko are proposed federally listed and state-listed species, respectively, and were already discussed above.

Colorado Desert Fringe-toed Lizard (*Uma notata notata).* The Colorado fringe-toed lizard is a CDFG Species of Special Concern and a BLM sensitive species. They are primarily insectivores, but also take plant material. Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand. Rodent burrows and the

bases of shrubs are also used for cover and thermoregulation. This species is found in the Colorado and Sonoran deserts south of the Salton Sea in Imperial and San Diego Counties. They are restricted to fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub.

This species has a high potential to occur within the survey area, but none were observed during surveys. This species is known to occur approximately two miles west of the survey area, and the creosote bush-white burr sage scrub vegetation provides suitable habitat.

Burrowing Owl (*Athene cunicularia*). The burrowing owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the MBTA and California Fish and Game Code §§ 3503, 3503.5, 3513. It is nocturnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August. Burrowing owls form a pair-bond for more than one year and exhibit high site fidelity, reusing the same burrow year after year. The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Urbanization has greatly reduced the amount of suitable habitat for this species. A survey effort carried out between 1991 and 1993 indicated that major population densities remain in the Central and Imperial Valleys. The burrowing owl is a year-round resident in Imperial County. In Imperial County, it can be found in desert scrub, grassland, and agricultural areas, where it digs its own or occupies existing burrows (Haug et al. 1993).

As discussed in the *Focused Burrowing Owl Nesting Season Surveys* (RECON 2010c), six active burrowing owl burrows were observed during the focused nesting season surveys within the active agricultural fields along the U.S./Mexico border, four of which are within the project survey area. Figure 3.12-3 depicts the location of the burrowing owls located in R-2. The westernmost active burrow hosted a pair of burrowing owls (BUOW #1), but no eggs or juveniles were detected in or around the burrow during the USFWS protocol-level surveys. The burrow is an earthen burrow built into the space adjacent to the concrete lining of an irrigation channel (Photograph 4).

Two more active burrows, BUOW #2, BUOW #3, and BUOW #4 were observed within the soil irrigation channel berms in the agricultural fields east of the Westside Main Canal. BUOW #2 was occupied by a single burrowing owl, while BUOW #3 and BUOW #4 were occupied by a pair. No eggs or juveniles were detected in any of the burrows.

An additional two burrowing owl burrows, BUOW #5 and BUOW #6, were observed just outside of the northeast and northwest corners of the survey area. The owls were observed foraging and perching near both burrows frequently. No eggs or juveniles were detected in either burrow; however the entrance to BUOW #6 contained scat from a number of mammal species and may indicate an active nest; this scattering of mammal scat at the burrow entrance is thought by some to mask the scent of the owls and young to prevent nest predation or to entice arthropods to enter the burrow.

While suitable habitat is present within the transmission line corridor (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site) no burrowing owl, burrowing owl burrow, or burrow owl sign was observed within the corridor during the surveys.

California Leaf-nosed Bat (*Macrotus californicus*). The California leaf-nosed bat is a Species of Special Concern and a BLM sensitive species. This bat is primarily found in desert areas of the southwestern United States, and ranges through Imperial County and western parts of Riverside and San Diego Counties in California. It is commonly found in desert habitats that include riparian, wash, scrub, succulent scrub, alkali scrub, and palm oasis. The California leaf-nosed bat is non-migratory and active year-round, requiring rocky, rugged terrain, caves, or mine shafts for roosting.

The desert washes, thickets, agricultural fields and irrigation channels offer foraging opportunities for this species. The nearest reported location for the California leaf-nosed bat is approximately 26 miles northwest of the Proposed Action (State of California 2010b). No known roosts occur in the survey area and there is no suitable roosting habitat within the survey area.

Pallid Bat (*Antrozous pallidus*). The pallid bat is a Species of Special Concern and a BLM sensitive species. It is a locally common yearlong resident of low elevations throughout most of California. This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and forests at elevations ranging from sea level up through mixed conifer forests. The species occurs most commonly in open, dry habitats and prefers rocky areas for roosting. Pallid bats are very sensitive to disturbance of the roosting sites as these roosts are crucial for metabolic economy and juvenile development.

The entire survey area offers foraging opportunities for this species. The nearest reported location for the pallid bat is approximately 26 miles west of the Proposed Action (State of California 2010b). Roosts are not known to occur in the survey area and there is no suitable roosting habitat within the survey area.

California Species of Special Concern

Four species that are classified by CDFG as California Species of Special Concern were observed within the survey area, including western least bittern, loggerhead shrike, crissal thrasher, and yellow warbler. Golden eagle, a CDFG Species of Special Concern and a fully protected species under the Bald and Eagle Protection Action, is also evaluated. These species are discussed below.

Western Least Bittern (*Ixobrychus exilis*). The western least bittern is a CDFG Species of Special Concern, and is a year-round resident of the Imperial Valley. In southern California, this species is a common summer resident (especially April to September) at the Salton Sea and Colorado River in dense emergent wetlands near sources of freshwater, and in desert riparian areas.

This species was observed nesting within the cattail marsh vegetation in R-2 of the solar energy facility. It is not expected to occur in any of the other project survey areas, due to lack of suitable marsh vegetation along the transmission line corridors.

Golden Eagle (*Aquila chrysaetos*). The golden eagle is a federally protected species under the Bald and Golden Eagle Protection Act. This species is also protected by the MBTA and California Fish and Game Code §§ 3503, 3503.5, 3513 protecting nests, eggs, and young. It is also a Species of Special Concern and is a Fully Protected Species by the State of California. This eagle occurs throughout the United States and is a rare resident in San Diego County and Imperial Counties. Golden eagles nest on cliffs or in large trees. This species forages over large areas of grassland, desert, and open chaparral or sage scrub.

The golden eagle is not expected to occur within or adjacent to the survey area. Golden eagles have not been recorded within the project vicinity (LaPre 2010; State of California 2010b) and were not observed during various spring and summer 2010 biological surveys for the Proposed Action. No suitable nesting habitat is present within the survey area; therefore, golden eagles are not expected to nest within the survey area.

The nearest known golden eagle population is approximately 10 miles northwest of the survey area, in the Coyote Mountains (LaPre 2010). The In-ko-Pah and Jacumba Mountains, approximately 10 miles west of the proposed project, also provide suitable habitat for this species. Due to the distance from known territories, golden eagles are not expected to forage within or adjacent to the survey area.

Loggerhead shrike (*Lanius ludovicianus*). The loggerhead shrike is a Species of Special Concern and protected by the MBTA and §§ 3503, 3513. It is a year-round resident in Imperial County. This species prefers open habitat with perches for hunting and fairly dense shrubs for nesting. In southern California, loggerhead shrikes inhabit grasslands, agricultural fields, chaparral, and desert scrub. Their breeding season is from March to August.

As depicted on Figure 3.12-3, loggerhead shrikes were observed in mesquite trees within all of the project component survey areas. This species is likely to nest within the mesquite trees in the desert wash, mesquite thicket, or tamarisk thicket vegetation within and adjacent to the survey area.

Crissal thrasher (*Toxostoma crissale).* The crissal thrasher is a Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513. It is a year-round resident in Imperial County. The species is a resident of southeastern deserts and occupies dense thickets of shrubs or low trees in desert riparian and desert wash habitats. This species forages mostly on the ground, especially between and under shrubs and uses its bill to dig in friable soil and to probe in litter. Breeding season lasts from February into June with a peak in March and April.

This species was observed within the mesquite thickets at the east end of IVS-3 of the Proposed Action Transmission Line Corridor. .

Le Conte's Thrasher (Toxostoma lecontei lecontei). The Le Conte's thrasher is a CDFG Species of Special Concern and is year-round resident in Imperial County. This species is an uncommon to rare, local resident in southern California deserts. It occurs primarily in open desert wash, desert scrub, alkali desert scrub, and

desert succulent scrub habitats. The Le Conte's thrasher is a non-migratory species that breeds from late January into early June, with a peak from mid-March to mid-April.

This species was observed within desert wash vegetation along the transmission corridor and in the tamarisk thicket vegetation within R-2 of the solar energy facility.

Yellow warbler (Dendroica petechia). The yellow warbler is a Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513. It is known to both winter and breed in Imperial County. In California, yellow warblers are an obligate riparian species, nesting and foraging almost exclusively in riparian habitats.

Three yellow warblers were observed within the desert wash vegetation south of the Imperial Valley Substation, and one was observed within the tamarisk thicket along the northwest boundary of the solar energy facility. This species is likely to nest within the mesquite trees in the desert wash, mesquite thicket, or tamarisk thicket within and adjacent to the survey area.

C. Riparian Habitat or Sensitive Natural Communities (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Sensitive vegetation communities are those that are considered rare or sensitive based on the level of disturbance or habitat conversion within their range. Vegetation communities associated with wetland or riparian habitats such as the desert wash and mesquite thickets are protected by state and federal regulations. In addition, the creosote bush-white burr sage scrub within the survey area is considered occupied by the FTHL and is therefore protected under BLM and CEQA guidelines.

3.12.2.4 Jurisdictional Waters (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

A jurisdictional delineation was conducted in July 2010 on the solar field and transmission line components to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. An additional wetland assessment was conducted along the west edge of IVS-8 in November 2010.

A. ACOE Jurisdictional Waters

No ACOE wetland areas were identified within the ISEC-South survey area. All ACOE jurisdictional areas are assumed non-wetland waters made up of ephemeral drainages. Some man-made features (e.g., farm drains/ditches) that occur within the survey area are potentially exempt from ACOE jurisdiction. No ACOE jurisdictional resources were identified within the additional IVS-8 survey area. Although arrow weed, classified as a facultative wet (FACW) plant species, clearly dominates some of the vegetated area west of the road, there does not appear to be a direct hydrologic connection from the arrow weed to the Westside Main Canal.

B. Non-wetland Waters of the U.S.

Jurisdictional non-wetland waters within the Imperial Solar Energy Center-South project survey area include one or more ephemeral drainages and a large expanse of the Pinto Wash alluvial fan that appears to occur within the active floodplain.

C. Exemption from ACOE Jurisdiction

Drainage features within the project survey area that could possibly be considered exempt from ACOE jurisdiction include farm drains. The active farm fields where the solar energy facility site would be located contain a series of ditches and drains that convey irrigation water to the crops. These drainage features consist of mostly concrete lined and some earthen ditches. The farm drains would not be not considered ACOE jurisdictional waters because they do not convey natural flows, were excavated in upland areas, are mostly concrete lined, and function as part of an active agricultural operation. An Approved jurisdictional determination form and supplemental information have been provided to the ACOE for consideration of a non-jurisdictional determination for these farm drains.

D. CDFG/RWQB Jurisdictional Waters

CDFG/RWQB jurisdictional waters of the State include all ACOE non-wetland jurisdictional waters (streambed) and any xeroriparian habitat that occurs outside of the limits of the ACOE jurisdiction. The xeroriparian areas observed, particularly in the Pinto Wash alluvial fan, consist of desert wash vegetation dominated by smoke tree, tamarisk, and mesquite stands of varying density. The 0.3 acre of arrow weed thicket within IVS-8 likely falls under the jurisdiction of CDFG, and will be confirmed in coordination with CDFG.

3.12.2.5 Habitat Connectivity and Wildlife Corridors (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates; food and water; allowing the dispersal of individuals away from high population density areas; and, facilitating the exchange of genetic traits between populations.

Both avian and terrestrial wildlife species are able to move freely throughout the proposed transmission corridor survey areas east to the Westside Main Canal, an important source of perennial water. Although avian species can access resources in agricultural areas, movement into the agricultural areas for many terrestrial species is only feasible by crossing the culverts over the canal.

3.12.2.6 California Desert Conservation Area (Proposed Action Transmission Line Corridor, Alternative 1-Alternative Transmission Line Corridor, and Alternative 2-Reduced Solar Energy Facility Site)

As shown on Figure 3.12-4, the proposed transmission line corridor (Proposed Action and Alternative 1-Alternative Transmission Line Corridor survey areas are located entirely within the Yuha Basin ACEC of the CDCA, and are within the "Utility Corridor N", as designated by the CDCA. The proposed Imperial Solar Energy Center-South solar energy facility is outside of and immediately adjacent to the designated ACEC land.

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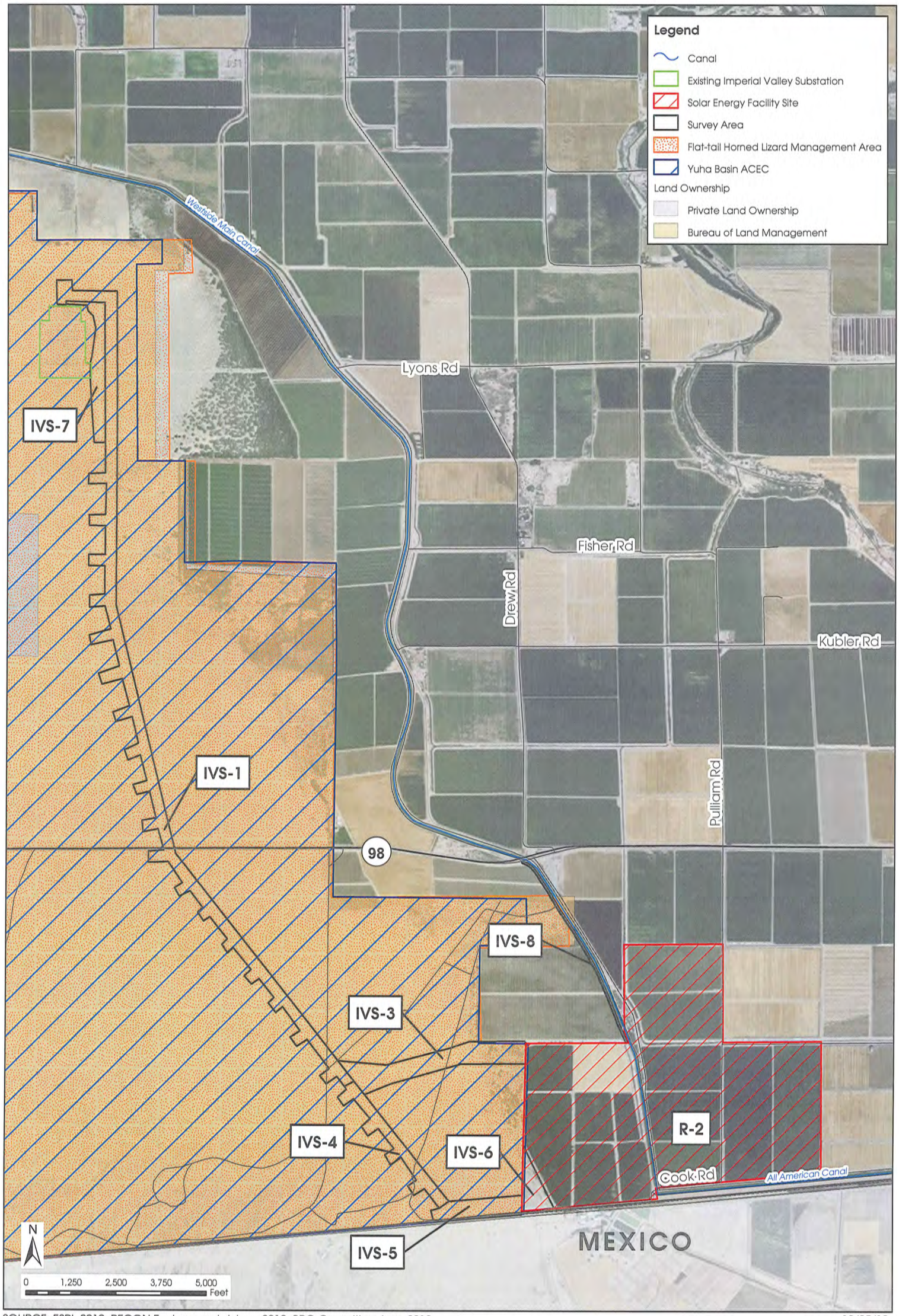

SOURCE: ESRI, 2010; RECON Environmental, Inc., 2010; BRG Consulting, Inc., 2010

10/25/10

BRG CONSULTING, INC.

Imperial Solar Energy Center South

Yuha Desert Flat-tail Horned Lizard Management Area

FIGURE 3.12-4

F:\projects\1009 Imperial Solar South\Draft EIR_EA\Chapter 3\Section 12\Figure 3.12-4 Yuha Desert Flat-tail Horned Lizard Mgmt Area.mxd

11X17 color (back)

3.13 Paleontological Resources

3.13.1 Regulatory Framework

3.13.1.1 Federal

A. BLM Instruction Memorandum 2009-011

The BLM Instruction Memorandum (IM) 2009-011 provides guidelines for assessing potential impacts to paleontological resources in order to determine mitigation steps for federal actions on public lands under the Federal Land Policy and Management Act (FLPMA) and NEPA. These guidelines also apply where a federal action impacts split-estate lands. In addition, the IM provides field survey and monitoring procedures to help minimize impacts to paleontological resources from federal actions in the case where it is determined that significant paleontological resources will be adversely affected by a federal action.

3.1.13.2 State

Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontologic feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

3.1.13.3 Local

The County of Imperial General Plan does not specify any goals or objectives for paleontological resources. However, paleontological resources are a sub-category of cultural resources. The Conservation and Open Space Element of the General Plan contains a goal and objective to preserve cultural resources.

3.13.2 Affected Environment

The site of the Proposed Action (which includes the solar energy facility and transmission corridor) is located in the Imperial Valley portion of the Salton Trough physiographic province of Southern California. As identified in the geologic investigation report (Landmark Consultants, May 2010, Appendix D of this EIR/EA), the site and surrounding Imperial Valley is directly underlain by geologic units comprised of quaternary lake deposits of the ancient Lake Cahuilla. Lakebed deposits of ancient Lake Cahuilla have yielded fossil remains from numerous localities in Imperial Valley. These include extensive freshwater shell beds, fish, seeds, pollen, diatoms, foraminifera, sponges, and wood. Lake Cahuilla deposits have also yielded vertebrate fossils, including teeth and bones of birds, horses, bighorn sheep, and reptiles. Therefore, the paleontological sensitivity of these lakebed deposits within the project site boundary is considered to be high.

In addition, the BLM uses a Potential Fossil Yield Classification (PFYC) System that classifies the paleontological resource sensitivity for geologic units and assists in determining proper mitigation

approaches for surface disturbing activities. The PFYC uses five classes, with Class 1 being Very Low Potential and Class 5 being Very High Potential. According to the BLM's PFYC System, the lakebed deposits of ancient Lake Cahuilla located within the project site is identified as Class 4b. Class 4b is defined by the BLM as an area underlain by geologic units with high potential to yield fossils but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to alluvial material, or other conditions that may lessen or prevent potential impacts to the bedrock resulting from the activity. Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action. For the Proposed Action, the management concern for paleontological resources is considered to be high.

3.14 Socioeconomic Conditions and Environmental Justice

3.14.1 Regulatory Framework

3.14.1.1 Federal

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994).

Executive Order 12898 requires federal agencies to analyze the effects of their decisions on human health and environmental conditions in minority and low-income communities. EPA's Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (EPA 1998) suggests a screening process to identify environmental justice concerns. If either of the following criterion of the two-step process is unmet, there is little chance of environmental justice effects occurring.

- Does the potentially affected community include minority and/or low-income populations?
- Are the environmental impacts likely to fall more heavily on minority and/or low-income members of the community and/or tribal resource?

Civil Rights Act of 1964, Public Law 88 352, 28 Stat. 24

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national programs in all programs or activities receiving Federal financial assistance.

Emergency Economic Stabilization Act of 2008 (Public Law 110-343) Business Solar Investment Tax Credit (Internal Revenue Code Section 48)

This Act extended the 30 percent investment tax credit (ITC) for solar energy property for eight years through December 31, 2016. The Act allows the ITC to be used to offset both regular and alternative minimum tax (AMT) and waives the public utility exception of current law (i.e., permits utilities to directly invest in solar facilities and claim the ITC). The 5-year accelerated depreciation allowance for solar property is permanent and unaffected by passage of the 8-year extension of the solar ITC.

American Recovery and Reinvestment Act of 2009

The goals of this Act are to create new jobs and save existing jobs, spur economic activity and invest in long-term growth, and foster unprecedented levels of accountability and transparency in government spending.

3.14.1.2 State

Government Code Section 65040.12 and PRC Section 72000

California law defines environmental justice as "the fair treatment of people of all races, cultures, and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."

Education Code Section 17620

The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.

Government Code Sections 65996 and 65997

The California Government Code states that, except for fees established under Education Code 17620, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost of school facilities.

California Revenue and Tax Code 70 74.7

Property taxes are not assessed on solar facilities. AB 1451 extended the current property tax exclusion for new construction of solar energy systems to January 1, 2017.

3.14.2 Affected Environment

The site of the proposed solar energy facility is located on 946.6 gross acres of privately-owned, undeveloped and agricultural lands. The site is located in the unincorporated Mt. Signal area of the County of Imperial. Imperial County is located in Southern California, bordering Mexico, west of Arizona, and east of San Diego County. The cities located in the vicinity of the solar energy facility include the City of El Centro and the City of Calexico.

3.14.2.1 Socioeconomic Characteristics of Imperial County

In June 2010, Imperial County's civilian labor force was estimated to be 76,400 persons. Of this number, 55,300 were employed and 21,100 were unemployed. According to employment characteristics from the California Employment Development Department, unemployment rates (not seasonally adjusted) for Imperial County, the State of California, and the United States for June 2010 were 27.6 percent, 12.2 percent, and 9.6 percent, respectively. Imperial County has been especially hard hit by the recent downturn in the economy. Imperial County's unemployment rate substantially exceeds that of the State of California and the United States. Employment characteristics for the years 2004, 2005, 2006, and 2009 from the California Employment Development Department are shown in Table 3.14-1.

Currently, the three sectors with the largest employment in Imperial County are agriculture, government, and trade, transportation and utilities. Like many other sectors in Imperial County, these three sectors have experienced job loss due to the recent downturn in the economy. Table 3.14-2 provides a brief summary of the population and economic comparison of Imperial County, City of El Centro, and City of Calexico in the year 2000 according to the U.S. Census Bureau American FactFinder.

TABLE 3.14-1
Imperial County Employment

	2004 Annual Average	2005 Annual Average	2006 Annual Average	2009 Annual Average
Imperial County Unemployment Rate	17.1%	16.1%	15.5%	28.2%
California Unemployment Rate	6.2%	5.4%	4.9%	11.6%
U.S. Unemployment Rate	5.5%	5.1%	4.6%	9.5%

Source: California Employment Development Department (EDD), Labor Market Information, 2008.

TABLE 3.14-2
Population and Economic Comparison, 2000

	Imperial County	City of El Centro	City of Calexico
Total Population	142,361	37,835	27,109
Population 16 and over	102,881	26,614	18,755
Percent Hispanic	72.2%	74.6%	95.3%
Unemployment Rate (2003 annual average)	19.4%		
Median Household Income	$31,870	$33,161	$28,929
Median Family Income	$35,226	$36,910	$30,277
Per capita income	$13,239	$13,874	$9,981
Median Male Earnings	$32,775	$36,753	$27,712
Median Female Earnings	$23,974	$24,514	$18,857
Families living in poverty	19.4%	20.6%	22.6%
Children in poverty	28.7%	29.5%	30.8%
Percent that Work in Construction	9.0%	8.2%	6.9%
Percent that Work in Services	19.7%	21.0%	18.8%

U.S. Census Bureau, 2000.

3.14.2.2 Race

The project site is located within Imperial County Census Tract 011900, which has a total 2000 population of 3,938. This census tract has predominately Hispanic or Latino ethnic composition, with Hispanics/Latinos making up approximately 94.2 percent of the overall population. Those of a Caucasian ethnic composition, compose the next highest group (48.3 percent) among one-race individuals.

Similar to the census tract where the Proposed Action is located, the ethnic composition of the City of Calexico and City of El Centro is predominately Hispanic or Latino, with this ethnicity comprising approximately 95.3% and 74.6% of the overall population, respectively.

A minority population, for purposes of environmental justice, is identified when the minority population of the potentially affected area is greater than 50 percent of the total population or meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis.

3.14.2.3 Income

The median household income for Census Tract 011900 is $32,273 and the percentage of the population not in the labor force is 47.7 percent. This census tract is considered a low-income and minority neighborhood. The following is a description of the economic characteristics of the City of Calexico and City of El Centro to compare against the economic characteristics of the census tract where the Proposed Action is located.

The City of Calexico is located approximately 11 miles east of the Proposed Action site. The median household income for the City of Calexico is $28,929 and the percentage of the population not in the labor force is 47.1%. The City of El Centro is another city in the vicinity of the Proposed Action site, located approximately 12 miles northeast. The City of El Centro has a median household income of $33,161 and the percentage of the population not in the labor force is 44.2%. The percentage of families living in poverty in the City of Calexico and City of El Centro are 20.6% and 22.6%, respectively. Similar to the census tract where the Proposed Action is located, the cities in the vicinity of the Proposed Action site are considered low-income and minority neighborhoods.

3.15 Recreation

3.15.1 Regulatory Framework

3.15.1.1 Federal

California Desert Conservation Area Plan

The CDCA Plan (BLM, 1980, as amended) recognizes that the California desert is "…a reservoir of open space and as a place for outdoor recreation" (CDCA Plan, BLM, 1980, page 69). The CDCA Plan notes that the diverse landscape of the California desert provides for a variety of physical settings. Further, the CDCA Plan identifies the wide variety of desert recreation uses ranging from off-road vehicles to outdoor preservationists, and the increasing challenge to accommodate these varied and sometimes competing uses. The transmission line corridor site located within BLM land is designated as Utility Corridor "N" and is not used by off-highway vehicle (OHV) enthusiasts. In addition, the portion of the access road within BLM lands is not used by OHV enthusiasts. However, there is a potential that BLM land that surrounds the site is used by OHVs.

The management goals of the CDCA Plan Recreation Element are to:

(1) Provide for a wide range of quality recreation opportunities and experiences emphasizing dispersed undeveloped use.

(2) Provide a minimum of recreation facilities. Those facilities should emphasize resource protection and visitor safety.

(3) Manage recreation use to minimize user conflicts, provide a safe recreation environment, and protect desert resources.

(4) Emphasize the use of public information and educational techniques to increase public awareness, enjoyment, and sensitivity to desert resources.

(5) Adjust management approach to accommodate changing visitor use patterns and preferences.

(6) Encourage the use and enjoyment of desert recreation opportunities by special populations, and provide facilities to meet the needs of those groups.

The transmission line corridor and the portion of the access road within BLM lands would be located within an area currently designated by the BLM as Utility Corridor "N", which consists of existing transmission lines, towers, and access roads. The proposed transmission lines would be installed adjacent to the existing lines to the extent possible and the lines and towers would be similar to the existing transmission lines in the area. The purpose of the Utility "N" Corridor is to allow a designated area within the BLM lands for utility structures such as transmission lines and to group them together in one area rather than allow them to be scattered throughout BLM lands. The BLM lands adjacent to the Utility Corridor "N" can be used for OHV recreation.

The entire transmission line corridor site and the portion of the access road within BLM lands are located within the Yuha Desert Recreation Lands. The CDCA Plan designates this area as Multiple-Use L (Limited Use). The Limited Use designation is suitable for recreation "…which generally involves low to moderate use densities." The Limited Use designation also limits all motorized travel to designated routes.

The *Western Colorado Desert Routes of Travel Designations* (WECO) is an amendment to the CDCA Plan. There are no open routes designated on the transmission line corridor site; however, the portion of the access road located within BLM lands is designated as "open."

3.15.2 Affected Environment

3.15.2.1 Setting and Existing Conditions

The site of the Proposed Action is approximately 946.6 gross acres in the southwest Imperial County. The site consists of a solar energy facility site located on existing agriculture land within the unincorporated Mt. Signal area of the County of Imperial; and a transmission line corridor located on desert land under the jurisdiction of the BLM. The solar energy facility site is located on private land designated for agricultural use in the County of Imperial and is not designated or zoned for recreation use. Therefore, the primary of focus of the recreation section in this EIR/EA will be on the transmission line corridor and access road located within BLM lands.

A. California Desert Conservation Area Plan

As discussed above, the entire transmission line corridor site and portion of the access road within the BLM right of way is located within the Yuha Desert Recreation Lands. The CDCA Plan designates this area as Multiple-Use L (Limited Use).

B. California State Parks

In addition, California State Parks (CSP) administers several recreation areas in the general vicinity of the overall project site. Those areas are described in Table 3.15-1.

C. Imperial County

The majority of the land in Imperial County is designated as Open Space/Recreation according to the County's General Plan Land Use Map. The open space and recreation areas under BLM management in Imperial County are designated as "open" or "limited use." In open areas, all forms of cross-county travel are permitted within the posted boundaries; however, in limited use areas, vehicle travel is limited to approved/signed routes of travel and no cross-country vehicle travel is allowed. Table 3.15-1 describes the recreation areas in the vicinity of the project site.

The solar energy facility site is located on private land designated for agricultural use in the County of Imperial and is not designated or zoned for recreation use. The transmission line corridor and access road are located within BLM lands designated as limited use and Utility "N" Corridor; however, use of agricultural areas for recreational activity such as hunting or walking is recognized in the General Plan.

TABLE 3.15-1
Open Space and Recreation Areas

Open Space/Recreation Area	Jurisdiction/Administration	Approximate Distance from the Project Site	Approximate Acreage	Allowed Uses
Yuha Desert Recreation Lands	Limited Area and ACEC/BLM	The transmission line corridor site and access road are located within the boundaries of this designation	+175,000	OHV, camping
Plaster City OHV Open Area	Open Area/BLM	11.2 miles northwest of project site	28,540	OHV, camping
Superstition Mountain	Open Area/BLM	16 miles north of project site	17,255	OHV, camping
Anza-Borrego Desert State Park	CSP	25 miles west of site	608,335	Camping, hiking, natural exhibits
Lark Canyon OHV Area and Campground	Limited Use Area/BLM	35 miles west of project site	N/A	OHV, camping
Ocotillo Wells State Vehicular Recreation Area	CSP	33 miles northwest of project site	68,623	OHV, camping
Heber Dunes State Recreation Area	CSP	14.6 miles east of project site	557	OHV, camping
East Mesa	Limited Use Area/BLM	35 miles northeast of project site	19,190	OHV, camping
Imperial Sand Dunes Recreation Area	Open Area/BLM	35 miles northeast of project site	22,463	OHV, camping

Source: BRG Consulting, Inc., 2010.

Notes: ACEC = Area of Critical Environmental Concern; BLM = Bureau of Land Management; CSP = California State Parks; N/A = Not Applicable; OHV = off-highway vehicle.

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3.16 Special Designations

3.16.1 Regulatory Framework

3.16.1.1 Federal

A. Wilderness, Areas of Critical Environmental Concern, and Special Areas

The Wilderness Act of 1964 provided for the establishment of a National Wilderness Preservation System with areas to be designated from public lands. Public lands administered by the BLM were included for wilderness review under the Federal Land Policy and Management Act (FLPMA) of 1976. The Wilderness Act defines Wilderness Areas as follows:

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

ACECs are defined in the California Desert Conservation Area Plan (CDCA Plan) (1980, as amended) as follows:

"An area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."

The CDCA Plan defines Special Areas as:
"... areas which possess rare, unique, or unusual qualities of scientific, educational, cultural, or recreational significance..."

The CDCA Plan Wilderness Element management goal has the following objectives:

(1) Until congressional release or designation as Wilderness, provide protection of wilderness values so that those values are not degraded so far as to significantly constrain the recommendation with respect to an area's suitability or nonsuitability for preservation as wilderness.

(2) Provide a wilderness system possessing a variety of opportunities for primitive and unconfined types of recreation, involving a diversity of ecosystems and landforms, geographically distributed throughout the desert.

(3) Manage a wilderness system in an unimpaired state, preserving wilderness values and primitive recreation opportunities, while providing for acceptable use.

For ACECs and Special Areas, the CDCA Plan provides the following management goals:

(1) Identify and protect the significant natural and cultural resources requiring special management attention found on the BLM-administered lands in the CDCA.

(2) Provide for other uses in the designated areas, compatible with the protection and enhancement of the significant natural and cultural resources.

(3) Systematically monitor the preservation of the significant natural and cultural resources on BLM-administered lands, and the compatibility of other allowed uses with these resources.

B. National Scenic and Historic Trails

The Bureau of Land Management is one of several agencies responsible for management of National Historic or Scenic Trails. In 1968, Congress established the National Trails System and designated the first national trails.

National Historic Trails are extended trails that closely follow a historic trail or route of travel of national significance. Designation identifies and protects historic routes, historic remnants, and artifacts for public use and enjoyment. The Bureau of Land Management is responsible for over 5,343 miles of 11 National Historic Trails. The Juan Bautista De Anza National Historic Trail lies approximately 3.2 miles west of the proposed project site.

National Scenic Trails are extended trails that provide maximum outdoor recreation potential and for the conservation and enjoyment of the various qualities – scenic, historical, natural, and cultural – of the areas they pass through. The Bureau of Land Management is responsible for over 668 miles of the Continental Divide, Pacific Crest, Potomac Heritage, Arizona, and Pacific Northwest National Scenic Trails.

On March 30, 2009, the Omnibus Public Lands Management Act of March 30, 2009 (P.L.111-11) added three new trails and 40 miles to the NLCS. The new trails include the Arizona National Scenic Trail, Pacific Northwest National Scenic Trail, and the Washington Rochambeau Revolutionary Route National Historic Trail.

The BLM administers three trails and supports five national trail-related visitor centers to foster visitor enjoyment, appreciation, and learning, including California Trail Historic Interpretive Center; National Historic Oregon Trail Interpretive Center; National Historic Trails Interpretive Center; Pompeys Pillar National Monument Visitor Contact Station; and Upper Missouri River Breaks National Monument Interpretive Center.

B. National and Wild Scenic Rivers

The National Wild and Scenic Rivers Act (Public Law 90-542; 16 United States Code [USC] 1271 et seq.) establishes the following:

> "It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes; and
>
> "The purpose of this Act is to implement this policy by instituting a national wild and scenic rivers system, by designating the initial components of that system, and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time."

The National Wild and Scenic Rivers Act of 1968 seeks to preserve certain rivers with outstanding, natural, cultural, and recreational values in a free-flowing condition. The Act attempts to preserve the unique characteristics of designated rivers while simultaneously recognizing potential use and development along those rivers. Each designated river is administered by either a state or Federal agency and may include the entire river, its tributaries or segments thereof.

Section 3.14.7.3 provides the definition of the National Wild and Scenic Rivers Act of 1968. In addition to this definition, the Act states that a wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in Section 1, subsection (b) of the Act. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, and administered as one of the following:

(1) Wild River Areas: Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic River Areas: Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational River Areas: Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

3.16.2 Affected Environment

The Proposed Action consists of a transmission line corridor located within desert land under the jurisdiction of the BLM and a solar energy facility site on private land under the jurisdiction of Imperial County. The transmission line corridor site located within the BLM is located in the Yuha Desert Area of Critical Environmental Concern. The Yuha Desert ACEC is under BLM jurisdiction. The following describes the special designation areas located within or in the vicinity of the Proposed Action.

3.16.2.1 Wilderness Areas

All Public Lands in the California Desert District were analyzed and summarized in 1979 wilderness inventory decisions performed pursuant to the Federal Land Policy and Management Act (FLPMA). According to the California Desert Wilderness Inventory Map, South Half, dated March 31, 1979, the Proposed Action (solar energy facility site, transmission line corridor, and access road) is not located within a CDCA Wilderness Area, the transmission line corridor is identified as being located within a roadless area which contains 5,000 acres of contiguous Public Land, but do not possess wilderness values meeting Section 2(c) criteria and have been dropped from further wilderness consideration (BLM, 1979). Therefore, wilderness areas are not analyzed in this EIR/EA.

The California Desert Protection Act (1994) established Wilderness Areas in this region. The closest wilderness areas to the Proposed Action are Jacumba Mountains Wilderness and Coyote Mountains Wilderness. The Jacumba Mountains Wilderness comprises 31,237 acres that are generally bounded by I-8 to the north and the California-Mexico international border to the south. This wilderness area is notable for private lands and recreational activities including camping and hunting. The Jacumba Mountains Wilderness is located approximately 9 miles southwest of the Proposed Action. The Coyote Mountains Wilderness comprises 18,622 acres and offers recreational activities such as hiking, camping, and sightseeing. The Coyote Mountains Wilderness is located approximately 12 miles northwest of the Proposed Action. Therefore, because the project site is located within or in close proximity to a wilderness area, the Proposed Action is consistent with Wilderness Act and FLPMA and wilderness areas are not analyzed further in this EIR/EA.

3.16.2.2 Areas of Critical Environmental Concern and Special Areas

The FLPMA defines an ACEC as an area "...within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."

The CDCA Plan identifies Special Areas as areas "...which possess rare, unique, or unusual qualities of scientific, educational, cultural, or recreational significance (and) may have one of 11 types of 'Special Area' designations applied to them."

As discussed in EIR/EA Section 4.12 Biological Resources, and shown on Figure 3.12-4, the proposed transmission line corridor site is located entirely within the Yuha Basin ACEC of the CDCA, and is within the

"Utility Corridor N", as designated by the CDCA. The solar energy facility site and the proposed access road through BLM lands are outside of and immediately adjacent to the designated ACEC land.

3.16.2.3 Donated Lands

The BLM can be the recipient and trustee of land donated by individuals or groups. Often such lands are donated with the expressed interest of preserving the resources that characterize these lands. In so doing, a restrictive instrument such as a conservation easement or deed restriction is attached to the donation and land that would control its use, often in terms of prohibiting development or change to the landscape. There is no record of such a donation and accompanying restrictive instrument associated with the project site. Therefore, because the project site is not located within or in close proximity to donated lands, donated lands are not further analyzed in this EIR/EA.

3.16.2.4 National Scenic and Historic Trails

According to the BLM National Historic Trails and National Scenic Trails Map, dated April 2010, no national scenic and historic trails are located within the project site. The closest trail is the Juan Bautista de Anza Matil Historic Trail located approximately 5 miles east of the Proposed Action. Furthermore, as discussed in Section 4.1 of this EIR, this trail is not visible from the project site. There is potential that one could have a view of the transmission tower from this trail; however, the proposed transmission towers would similar to what currently exists in the area. Therefore, because the project site is not located within or in close proximity to a national scenic and historic trail, the Proposed Action would not conflict with the BLM's management of the stabled National Trails System. As such, national scenic and historic trails are not further analyzed in this EIR/EA.

3.16.2.5 National and Wild Scenic Rivers

Palm Canyon Creek, located approximately 79.6 miles to the northwest of the Proposed Action, is the nearest waterway that is designated as a National Wild and Scenic River. There are no designated National Wild and Scenic Rivers on or in the vicinity of the Proposed Action. Therefore, because the project site is not located within close proximity to any national and wild scenic rivers, the Proposed Action would be consistent with the National Wild and Scenic Rivers Act and national and wild scenic rivers are not further analyzed in this EIR/EA.

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